Tropical Products Institute

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The market for tuna

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NOTE

Tables of world trade cover the period 1960–69, but those for individual countries are generally for 1969 only. Price tables are for the period 1965 to 1971.

In the case of some countries trade statistics have been prepared for a longer period than one year and these are available on request to the Institute.

ACKNOWLEDGEMENTS

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The market for tuna

SUMMARY AND CONCLUSIONS

1. The market for tuna may be divided into that for white meat obtained from the albacore species and light meat obtained mainly from the yellowfin, bluefin, bigeye and skipjack species. Due to labelling laws bonito tuna normally form a different product.

2. Tuna is sold both fresh and canned. It is not normally eaten raw except in Japan. Small quantities of tuna are traded smoked or dried.

3. Consumption is concentrated in seven countries: Japan, the USA, Peru, Taiwan, Italy, Spain and France. Of these countries Japan and the USA are easily the most important.

4. A notable feature of international trade is the large number of trans-shipment points at which catches are landed before they are sent to their final destinations.

5. The total catch of tuna is rising slowly and in 1969 was 1 467 000 tons. Yellowfin and skipjack are the most important species in terms of the quantity landed but albacore is the most valuable. Any appreciable increase in future landings are likely to be of skipjack since other species are reaching the point of maximum sustainable yield.

6. Japan takes over a third of the world catch. In recent years, however, her landings have fallen and those of some other countries, notably South Korea and Taiwan, have risen.

7. Production of canned tuna is concentrated in the USA, Japan and Italy.

8. Total exports of raw tuna in 1969 were 219 000 tons. They were valued at £35.6 million. Japanese exports are twice the quantity of those from any other country but have fallen considerably since 1966. Taiwan, South Korea and Peru are other important exporters. Exports from Taiwan and South Korea have been rising rapidly.

9. In 1969 total exports of canned tuna were 89 000 tons (£19.5 million). Of these 64 000 tons were from Japan. Between 1960 and 1969 Japan's exports rose each year, with the exception of 1965, and she increased her share of world exports from nearly a half to over 70 per cent. No other country exports more than 10 000 tons.

The trend of canned exports is slightly upwards.

10. The most important markets for raw tuna are the USA, Italy and Japan. In 1969 their respective imports were 142 000 tons, 48 000 tons and 35 000 tons. Total imports were 256 000 tons (£44.7 million).

11. The USA is also the biggest importer of canned tuna and in 1969 her imports were 34 000 tons of total world imports of 84 000 tons. Other notable importers of canned tuna are the countries of the European Economic Community (excluding the Netherlands), the United Kingdom and Switzerland.

12. The market prospects for new suppliers are thought to be good in nearly all markets if they can provide their product at a competitive price. Of the various tuna species skipjack are thought to have the greatest potential.

13. The finding of high levels of methyl mercury in some tins of canned tuna in the USA at the end of 1970 resulted in temporary consumer resistance to the product. This appears to have ended with the findings of governmental investigations. A number of countries have set up tolerance levels for the mercury content of imported fish and imports exceeding these limits are to be rejected.

14. The largest single influence on the price of tuna, apart from the size of the catch is the state of the market in the USA. Normally albacore tuna commands the highest price in that market. Since 1968 the prices of all tuna species have risen continuously. The rise was particularly marked in 1970.

15. The main factor affecting the market for tuna in the future is likely to be the size of the world catch. The USA is expected to continue its dominance of the market which may become even more marked.

SOMMAIRE ET CONCLUSIONS

1. Le marché du thon peut se diviser en deux catégories, celui du thon à la chair blanche provenant de l'espèce germon et celui provenant notamment des espèces dites nageoire jaune (albacore), thon rouge, thon obèse et bonite à ventre rayé. En raison de la réglementation en vigueur concernant sa désignation, la bonite est normalement considérée comme un produit différent.

2. Le thon se vend frais ou en conserve. Sauf au Japon, il n'est pas consommé à l'état cru. Le commerce du thon fumé ou sec se fait en quantités peu importantes.

3. La consommation se concentre sur sept pays principaux: le Japon, les Etats-Unis, le Pérou, le Taiwan, l'Italie, l'Espagne et la France. Parmi ces pays, le Japon et les Etats-Unis sont de loin les plus importants consommateurs.

4. Un trait caractéristique du commerce international se trouve dans le grand nombre de points de départ à partir desquels les pêches sont transbordées avant l'expédition vers leurs destinations définitives.

5. La pêche du thon augmente lentement, en 1969 elle atteignait un total de 1 491 000 tonnes. Les espèces dites à nageoire jaune (albacore) et bonite à ventre rayé sont celles qui sur le plan de la quantité amenée à terre sont les plus importantes, mais l'espèce germon est celle qui s'attire la valeur la plus élevée. Toute augmentation sensible des pêches futures est susceptible de provenir de l'espèce bonite à ventre rayé puisque les autres espèces atteignent déjà le point maximal de rendement soutenable.

6. Le Japon prend le tiers et même plus de la pêche totale du monde. Depuis quelques années cependant ses prises ont diminué tandis que celles des autres pays, dont notamment la Corée du Sud et le Taiwan, ont augmenté.

7. Les Etats-Unis, le Japon et l'Italie sont les pays où se concentre la production du thon en conserve.

8. L'ensemble des exportations de thon cru s'elevait à 223 000 tonnes représentant une valeur estimée à £35,6 millions. Le Japon exporte deux fois autant que n'importe quel autre pays, mais depuis 1966 son exportation a diminué sensiblement. Le Taiwan, la Corée du Sud et le Pérou sont aussi exportateurs d'importantes quantités. Les exportations effectuées par le Taiwan et la Corée du Sud ont augmenté rapidement.

9. En 1969, le total des exportations de thon en conserve était de 90 000 tonnes (£19,5 millions), dont 65 000 tonnes provenaient du Japon. De 1960 à 1969, les exportations en provenance du Japon ont augmenté annuellement, sauf en 1965; sa participation dans l'exportation mondiale s'est accrue de 50 pour cent pour atteindre plus de 70 pour cent. Aucun autre pays n'exporte une quantité supérieure à 10 000 tonnes.

L'exportation du thon en conserve tend à évoluer légèrement.

10. Les marchés les plus importants de thon cru sont les Etats-Unis, l'Italie et le Japon. En 1969, ces pays importaient 144 000, 49 000 et 36 000 tonnes, respectivement. Le total des importations s'élevait à 260 000 tonnes, soit une valeur de £44,7 millions.

11. Les Etats-Unis sont également les plus importants importateurs de thon en conserve; En 1969, sur la totalité mondiale de 85 000 tonnes, les Etats-Unis ont importé 35 000 tonnes. Les autres pays importateurs de thon en conserve sont les pays de la Communauté Economique Européene (à l'exception des Pays-Bas), le Royaume-Uni et la Suisse.

12. On pense que les perspectives d'avenir de ce marché sont excellentes pour les nouveaux fournisseurs à condition qu'ils puissent fournir leurs produits à un prix compéittif. Sur toutes les espèces de thon, la bonite à ventre rayé est considéré comme présentant les meilleures possibilités.

13. Le taux élevé de mercure méthylique constaté dans certaines conserves de thon aux Etats-Unis en fin 1970 à entraîné une résistance temporaire de la part des consommateurs. Les constatations de l'enquête menée par le gouvernement semblent y avoir mis fin. Dans plusieurs pays, le niveau de la teneur en mercure des poissons importés fait l'objet de contrôles rigoureux et l'importation des produits dont la teneur est supérieure aux limites imposées est interdite.

14. Outre la quantité de la pêche, l'état du marché aux Etats-Unis est le facteur qui exerce la plus grande influence sur le prix du thon. Normalement le thon provenant de l'espèce germon obtient le meilleur prix sur ce marché. Depuis 1968 le prix de toutes les espèces de thon est en hausse continue. On a constaté une hausse sensible en 1970 notamment.

15. Le facteur principal qui exerce une influence sur le marché du thon à l'avenir sera sans doute l'importance de la pêche. On s'attend à ce que les Etats-Unis continuent à dominer ce marché et leur influence pourrait même s'accentuer davantage.

RESUMEN Y CONCLUSIONES

1. El mercado para el atún puede dividirse en el de carne blanca procedente de la atún blanco y el de carne pálida que se obtiene principalmente de las especies de albacora, atún rojo, patudo y bonito de vientre rayado. Debido al reglamento de denominación, el atún de bonito constituye normalmente un producto por separado.

2. El atún se vende fresco y envasado. Generalmente no se come crudo, excepto en Japón. En pequeñas cantidades, se encuentra en el comercio, ahumado o seco.

3. El consumo se concentra en siete países: Japón, Estados Unidos, Perú, Formosa, Italia, España y Francia. De todos los países mencionados Japón y Estados Unidos están en vanguardia.

4. Una característica importante del comercio internacional es el gran número de puntos transferencia de embarque existentes, en los cuales se descarga el atún antes de ser transportado a su punto final de destino.

5. La captura total de atún va paulatinamente en aumento y en el año 1969 alcanzó la cifra de 1 491 000 toneladas. En cuanto a volumen se refiere, albacora y bonito de vientre rayado son las especies de mayor importancia, pero la atún blanco es la de mayor valor. Comoquiera que otras especies están llegando al límite de compensación de captura, se desprende que todo incremento de importancia alguna en las capturas del futuro, será a base de la variedad bonito de vientre rayado.

6. El Japón captura un tercio del total del mundo. Sin embargo, en los últimos anos, sus capturas han disminuído, mientras que las de otros países, en especial Korea del Sur y Formosa, han ido en aumento.

7. La producción de atún en conserva se concentra en los Estados Unidos, Japón e Italia.

8. El volumen de la exportación de atún en crudo, en 1969, alcanzó las 223 000 toneladas, cuyo valor ascendió a £35,6 millones. La exportación del producto en Japón es el doble que la de cualquier otro país, pero ha experimentado una baja considerable a partir de 1966. Otros exportadores importantes son Formosa, Korea del Sur y Perú. De estos países, los dos primeros han experimentado una alza muy rápida en las exportaciones.

9. En el año 1969, la exportación total de atún en conserva fue de 90 000 toneladas, con un valor de £19,5 millones.

Japón exportó 65 000 toneladas del total. A excepción del año 1965, las exportaciones del Japón durante la pasada década experimentaron un continuo aumento, incrementando su proporción de la exportación mundial desde un 50 per cent a un 70 per cent. Ningún otro país supera las 10 000 tonelades de exportación.

La tendencia de exportación de conservas es creciente.

10. Los mercados de mayor importancia para atún en crudo son los de Estados Unidos, Italia y Japón. Sus importaciones respectivas alcanzaron las cifras de 144 000, 49 000 y 36 000 toneladas en 1969. Las importaciones totales ascendieron a 260 000 toneladas, con un valor de £44,7 millones.

11. Estados Unidos es el principal país importador de atún en conserva y en 1969 sus importaciones ascendieron a 35 000 toneladas de las 85 000 toneladas del total mundial. Otros países importadores de importancia son los de! Mercado Común de Europa (excluyéndose Holanda), el Reino Unido y Suiza.

12. Se cree que las oportunidades del mercado para nuevos proveedores son buenas, en tanto puedan suministrar su producto a un precio competitivo. Parece ser que de todas las variedades, bonito de vientre rayado es la que parece contar con el mayor potencial.

13. El hallazgo de alta concentración de mercurio de metilo en algunas latas de atún, en los Estados Unidos, a finales de 1970, originó una resistencia temporal al producto por parte del consumidor. Esta resistencia parece haberse desvanecido a raíz de los resultados de la investigación llevada a cabo por el gobierno. Cierto número de países ha establecido ciertos grados de tolerancia para la concentración de mercurio en pescado importado que es objeto de rechazo cuando se sobrepasan tales límites.

14. Lo que más influye por sí solo en el precio del atún, aparte del volumen de captura, es el estado del mercado de los Estados Unidos. En este país, el atún de la variedad de la atún blanco es el de mayor precio. A partir de 1968, todas las variedades de atún han aumentado continuamente de precio. El incremento mayor ocurrió en el curso del año 1970.

15. El principal factor que influya en el futuro en el mercado del atún será el volumen de captura mundial. So espera que sean los Estados Unidos quienes continuen con su dominio del mercado y hasta quizás de una manera más marcada y definitiva.

Part 1

Introduction

There is no firm, agreed international definition of the species of fish to be included under the general heading of 'tuna' or 'tunny'. For the purpose of this Report, therefore, the definition used covers those species appearing most commonly in the trade returns of tuna trading countries, and refers to the following varieties of fish:

Tunas	Albacore	(*Thunnus alalunga*)
	Bigeye	(*Thunnus obesus*)
	Yellowfin	(*Thunnus albacora*)
Skipjack		(*Euthynnus pelamis*)
Little tuna		(*Euthynnus alletteratus*)
Bonitos		(*Sarda* — various species)
Frigate mackerel		(*Auxis thazard*)

These species may be divided into three distinct groups based on their use and market value. The albacore is the only species that can be sold in the United States, the most important market, as 'white meat' tuna. The other species, with the exception of bonito and frigate mackerel, form the 'light meat' market. Bonito and frigate mackerel cannot be labelled as tuna in the USA and most of Europe because of labelling laws and, therefore, form a separate group having a lower market value*.

When reading this Report it should be noted that the statistics quoted are often not very reliable or even, sometimes, comparable. Examples of the species of fish included as tuna in the trade returns of various countries are given in Appendix B. Wherever practicable an allowance has been made for this, but it has not always been possible as the different species are often not given separately. Other reasons for statistical unreliability arise out of the way in which the industry is organised with catches being landed in foreign ports and then trans-shipped. Despite such deficiencies the trends in most markets are sufficiently clear for conclusions to be drawn but it should be remembered that the statistics quoted are orders of magnitude rather than specific quantities.

*Further details of these species are given in Part II

Part II

The product and its uses

The tuna is a 'pelagic' type of fish, ie it is a species of the high seas spawning, developing and maturing in the ocean. It migrates over long distances, often travelling very fast. The main factor determining the fish's distribution is generally thought to be water temperature, which must be between 14° and 24° Centigrade. The temperature of the tuna itself exceeds that of the surrounding water by about 8°. Perhaps because of this, the taste and character of its flesh recalls that of warm blooded animals, hence the name 'tunny-meat'. The vertical distribution of tuna is affected by temperature in the presence of the 'thermocline'. This is the point at which there is a rapid change in water temperature below which the fish will not normally go and occurs in tropical waters at 20–50 fathoms below the surface. Accordingly, tuna are often found in parts of the ocean where the temperature is changing, or where pockets of warmer water intrude into colder areas, eg Gulf Stream.

Although water temperature is the main factor limiting tuna distribution mainly to tropical and subtropical waters, there is no agreement on the reasons for its dispersal within this area. A recent work on this subject by Hiroshi Nakamura[1] has put forward the view that ocean currents (or water masses) provide tunas with individual habitats according to their species and ecological stage. Migration is thought to be of two types – between habitats and within them, and caused in the first case by the ecological stage of the fish and in the second by seasonal changes in the strength of the current systems. Two of the main factors affecting these habitats are the salinity and transparency of the water. Thus, the areas where tuna fishing takes place are determined, by the time of the year and the variety of fish sought*. The most important of these areas are: along the western coast of the Southern United States, Mexico, Central and South America; the western reaches of the Central and South Pacific and north to Japan; the Indian Ocean and, more recently, in the Atlantic in the area off Cape Verde, and in a broad band extending along the Equator to the coast of South America.

The largest tuna is the *bluefin.* This can reach a length of up to 12 ft and a weight of over 1 000 lb. It is mainly a fish of the Atlantic. In the Pacific it is less abundant and smaller, rarely exceeding 80 lb. It is less susceptible to colder temperatures than the other varieties and in the summer it ranges far north, being caught off Norway and Nova Scotia. Its meat is relatively dark with a distinctive flavour.

Second in size is the *yellowfin,* which is the most important tuna used for canning in the lightmeat pack. It grows up to 9 ft and weighs between 10 and 500 lb, although its normal size is between 30 and 200 lb. Unlike the bluefin, it is almost entirely confined to tropical and sub-tropical waters. The larger sizes are rarely used for canning as their flesh tends to be dark in colour and tough in texture.

*A comprehensive list of the various types of tuna, skipjack and bonito and their distribution is contained in Appendix C

The *big-eye* tuna is a very similar species to the yellowfin and it is only in comparatively recent times that it has been recognised commercially as distinct. Canned it is virtually indistinguishable.

The most commercially important tuna in terms of its price per ton (see Part IX) is the *albacore*. This varies in size from 10 to 70 lb and its high price is due to it having the 'whitest' meat of all the species. Although it is found in the tropics it is generally considered more a fish of temperate waters.

The *skipjack* is the most commercially important of the smaller tuna. It normally weighs between 6 and 12 lb, although it can reach 30 lb. It is caught along coastal areas rather than in mid-ocean and is often found on current boundaries where the temperature changes. The colour of the flesh is darker than that of some of the other varieties constituting the lightmeat pack and it has a distinct flavour of its own.

The *bonito* is another small tuna weighing 6–8 lb with a maximum of 25. Its area of distribution is similar to that of the skipjack, but it is distinct as a product, since its flesh is lighter and its flavour more bland.

The other types of tuna – little tunas, blackfin, frigate mackerel etc are not important in world trade.

Tuna meat and its uses

The chemical composition of tuna meat is given in Table 1.

Table 1

Tuna: average analysis of raw and canned albacore and yellowfin

	Moisture content %	Oil content %	Protein content %	Ash content %
Albacore				
Raw fish	69.10	8.10	22.30	1.20
Canned fish	60.10	12.30	27.70	–
Yellowfin				
Raw fish	62.00	12.90	23.30	2.70
Canned fish	64.80	6.30	29.00	1.80

Source: E. B. Dewberry 1969. Tuna canning in the United States. *Food Trade Review,* **39**(11), p.38

The flesh contains vitamin B12, iodine, substantial quantities of vitamins A and D and other vitamins of the B group such as thiamin, riboflavin and niacin. The number of calories in a 100 gram portion of meat has been assessed as high as 290[2].

Nearly all tuna meat is used for human consumption. It is sold both in its fresh and canned state, but is not normally eaten raw except in Japan where bluefin fetch a high price as 'sashimi' (thin-sliced raw tuna). The term 'raw tuna' employed in talking of trade covers fresh, chilled and frozen fish, and the phrase 'consumption of raw tuna' where employed in this Report refers to the sale of uncooked tuna meat. Canned tuna includes fish preserved in bottles or other airtight containers. Further ways of marketing tuna are: semi-preserved and spice-cured; fermented dried (Katsuobushi) for use as a condiment or in soups, and as salted fillets. Most of these forms are of particular importance in Japan, but the salted meat is also consumed in some Mediterranean countries.

Fresh and frozen tuna is sold in three basic forms – whole, gutted, and as pieces of fillet. It is also made into 'tuna links' or sausages.

Canned tuna has two main, broad classifications – white meat canned from the albacore, and light meat which is canned from yellowfin, bluefin, skipjack and big-eye. Due to labelling laws bonito are sold in many markets as a separate product.

White meat ranges in colour from a light pink to a creamy white. Its texture is definitely firm: and its flavour generally bland.

Light meat, much the more important in terms of quantity sold, has minor distinctions dependent upon the species from which it is canned. The colour is a light tan, often with pinkish tones, the texture is softer than that of white meat tuna, and the flavour fuller.

The most common packing medium for tuna is an edible oil such as soya bean or cotton seed. Olive oil is also used but only for special packs. Some of the various types of these are: tuna with spiced vegetables, tuna in jelly (aspic), and tuna in savoury sauce. Apart from oil, tuna is also packed in brine and large amounts of this kind of pack are exported from Japan for distribution in the United States.

The main types of canned tuna are solid pack, chunk-style, and grated, flake or shredded pack. The first of these is the primary product of the cannery, the others arise out of the process involved in its manufacture. A full description of this process is contained in Dewberry's article already cited[2].

As well as these more common forms of food product, tuna is also sold as a paste, a baby-food, a goulash and a salad. In addition, tuna roe is sold in Italy and North Africa under the name of 'bottarga' (or 'botargo').

A number of by-products may result from the preparation of tuna for human consumption. Usually these will only be available where tuna are processed in considerable quantities. The most important are body oil, pet food and fish meal.

Consumption

Tuna consumption is concentrated in seven countries – Japan, the USA, Peru, Taiwan, Italy, Spain and France. Of these Japan, Peru and Taiwan are notable as markets for raw tuna, whilst the USA, Italy and France are notable as markets for canned. In Spain tuna is important in both forms.

Exact consumption levels are difficult to assess due partly to the absence of sufficient statistical detail, and partly to an absence of agreed conversion factors for tuna, comparing such items as tuna catches, and raw and canned imports. The National Marine Fisheries Service of the United States Department of Commerce makes regular assessments of consumption and in that country it is believed to be between 4 and 5 lbs a head round weight. This is lower than in Japan, where consumption is thought to be between 6 and 8 lb, or in Taiwan, but higher than in nearly every other country. Bigger assessments of up to 16 lb per capita have been reached for Peru but their reliability is extremely suspect.

Part III

Organisation of the industry

The main methods by which tuna are caught commercially are: purse-seining, longlining, trolleying, and pole and line fishing. The particular method used varies with the country concerned and the species of tuna being caught.

Purse-seining involves surrounding a shoal of fish swimming at or near the surface of the sea by a complete wall (cylinder) of netting, and then closing the bottom of the cylinder to prevent the escape downwards of the entrapped shoal. It is used particularly for yellowfin and skipjack.

The longline is a method favoured by the Japanese for catching fish which swim some way below the surface, not in shoals, and usually well away from land. It consists of a long, continuous line suspended from the surface at a productive level by means of adjustable buoys. The line may be as much as 50 miles in length and thousands of baited hooks are suspended from the main line at the level where the fish are believed to be feeding. It is used for the larger tuna, such as albacore, yellowfin and big-eye.

Trolling is a very simple technique in which an artificial lure is towed slowly behind the fishing vessel. In order to increase the chances of a strike it is usual for commercial vessels to tow many lures at the same time ('multiple trolling'). The fish most commonly taken are albacore, yellowfin, skipjack and little tuna.

In pole and line fishing the tuna are offered an unbarbed, unbaited hook attached to a short line which is fastened to a stout pole: each man fishing is equipped with such a pole line. To encourage the tuna to bite they are offered small, live, bait fish. The tuna will not usually show any immediate interest in these, but eventually they start feeding, striking indiscriminately at the bait fish and hook alike. This technique is used mostly in fishing for skipjack.

Tuna fisheries can be divided into three categories:

1. Inshore operations which involve vessels employing relatively simple fishing techniques, being at sea for no more than one or two days. This is the most important tuna fishery for a large number of small tuna-landing countries. The catch is either landed fresh or chilled in ice. Examples of this type of fishery are operations based at Aer Temboga, Indonesia, and Palau in the Western Caroline Islands.
2. Coastal operations extending perhaps 100 to 200 miles from the coast. The vessels which fish these areas stay at sea for several days and the catch is chilled or frozen on board before landing. Sophisticated techniques of fishing, handling and preservation of the catch are employed.
3. Oceanic or deep sea operations.
   As the demand for tuna has risen during the past twenty years or so a strain has been put on the tuna resources in the two fisheries above thereby encouraging fishing further afield. The fleets operating in this type of fishery stay at sea

Diagram 1

Shipping and trans-shipping points for frozen tuna

1. Buenos Aires, Argentina
2. Kingston, Jamaica
3. Port of Spain, Trinidad
4. Philipsburg, St. Martin
5. Las Palmas, Canary I.
6. Sao Vicente, Cape Verde I.
7. Dakar, Senegal
8. Freetown, Sierra Leone
9. Monrovia, Liberia
10. Abidjan, Ivory Coast
11. Tema, Ghana
12. Pointe Noire, Congo-Brazzaville
13. Luanda, Angola
14. Capetown, South Africa
15. Durban, South Africa
16. Lourenco Marques, Mozambique
17. Mombasa, Kenya
18. Tamatave, Madagascar
19. Port Louis, Mauritius
20. Penang, Malaysia
21. Miyazaki, Japan
22. Yaizu, Japan
23. Shimizu, Japan
24. Palau, Caroline I.
25. Espiritu Santo, New Hebrides
26. Suva, Fiji I.
27. Pago Pago, American Samoa
28. Puntarenas, Costa Rica
29. Taboga, Panama
30. Manta, Ecuador
31. Paita, Peru
32. Coischo, Peru

Source : FAO 1971 *International trade - tuna* p.23

for several days or weeks; they employ the most modern techniques and either deep freeze or chill their catch in ice. The vessels land their catch at a nearby port where there are tuna storing or processing plants, or they transfer the catch to refrigerated motherships which transport the fish to landing points.

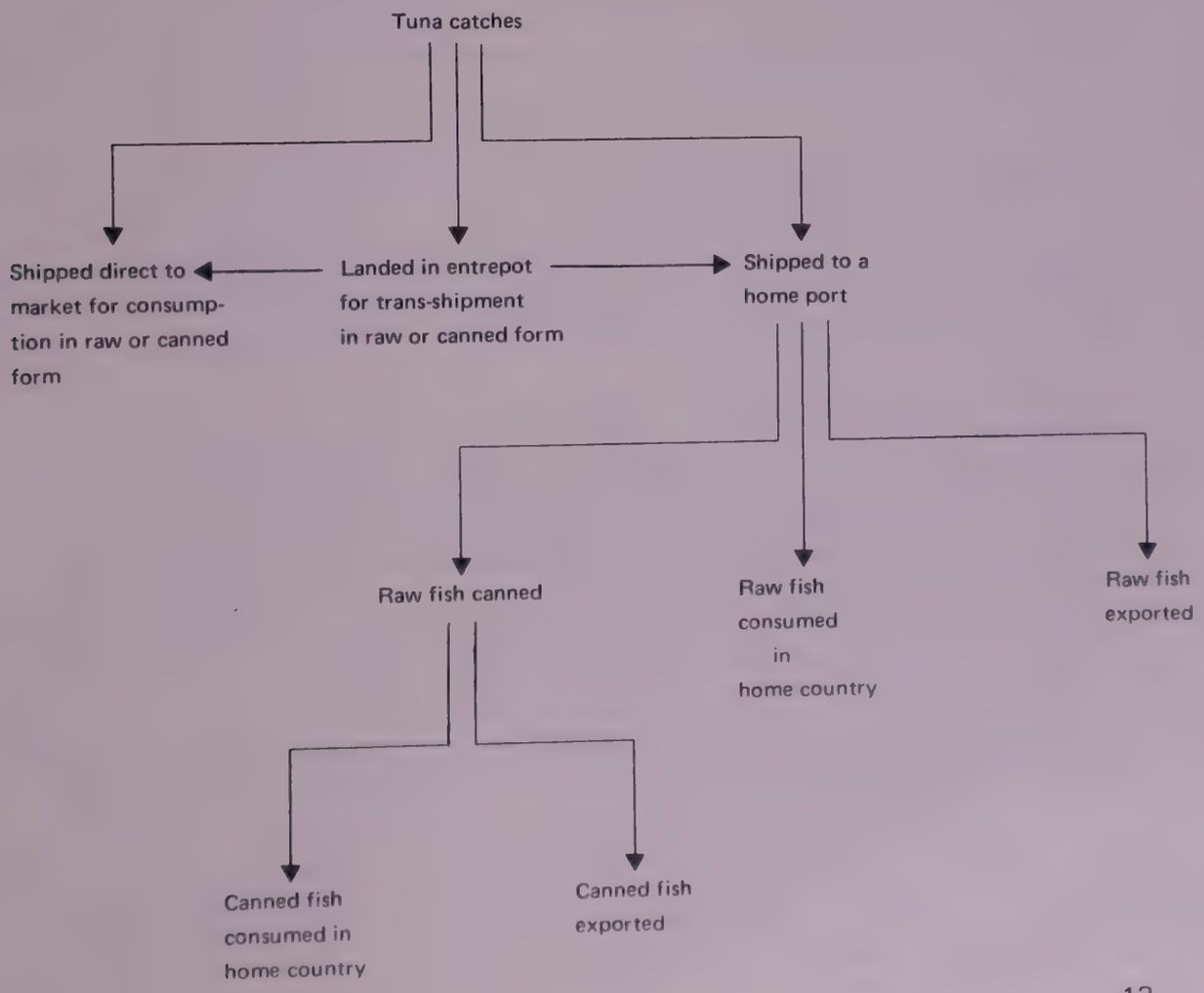
Many of the boats of the major world tuna fleets are permanently based in the ports of overseas countries. The main countries whose fleets operate in this way are Japan, Taiwan and South Korea and, to a lesser extent, the USA. Apart from serving as places from which boats can operate and be repaired most of these ports are also trans-shipment points from where shipments may be made directly to markets in the USA and Japan. A recent work[3] on international trade in tuna listed 32 of these trans-shipping points and they are shown in Diagram 1.

Trans-shipment points are situated in six main areas: Japan, (eg Yaizu), the Western Pacific (eg American Samoa), East Africa (eg Madagascar and Mauritius), West Africa (eg Abidjan and Tema) the Caribbean (eg Jamaica) and the north west coast of South and Central America (Costa Rica). At some of the trans-shipment ports, eg Mauritius and Dakar, canning operations take place before the fish go to their final destination.

The trading flow is illustrated diagramatically in Diagram 2 which shows the disposition of a catch of tuna. The arrows indicate the direction of the movement of the fish from the time it is caught.

It will be seen that there are initially three possible types of destination viz a home port, an entrepot and the final market. From the first two of these, part or all of the catch may be re-exported, either in its original or canned form.

Diagram 2
Organisation of the tuna industry



Part IV

The world catch

In 1969 the total world catch of tuna was 1 467 000 tons*. Details are given in Table A1 of which an extract is shown in Table 2.

Table 2

Tuna: world catch in 1969

	Quantity in thousand tons live weight	Percentage of total
Japan	534	36.4
USA	152	10.3
Taiwan	113	7.7
South Korea	82	5.6
Peru	74	5.1
Spain	62	4.2
Other countries	450	30.7
Total	1 467	100.0

Source: *Table A1*

It will be seen that Japan is easily the biggest lander of tuna taking over a third of the total world catch. She is followed by the USA, Taiwan and South Korea. The most important of the countries not shown are Ceylon, France, Ghana, Puerto Rico, and the Philippines, each having a catch of between 30 000 tons and 60 000 tons. Other countries which made a catch of more than 10 000 tons in 1969 were Ecuador, the Maldive Islands, Morocco, Pakistan, the Ryukyu Islands,** the Senegal and Turkey.

The total quantity of fish caught is rising slowly (Diagram 3). Since 1965 the annual increase has been on average, 50 000 tons. The main current trend is for a larger proportion of the world catch to be taken by 'new countries' such as Taiwan and South Korea. In 1965 the combined catch of these two countries was only 35 000 tons compared with 195 000 tons in 1969. The other main change from the picture in 1960 is the decline in the Peruvian catch. This fall was experienced in the five years 1960–65. Since that time the catch has been steadier at a level of between 60 000 tons and 80 000 tons.

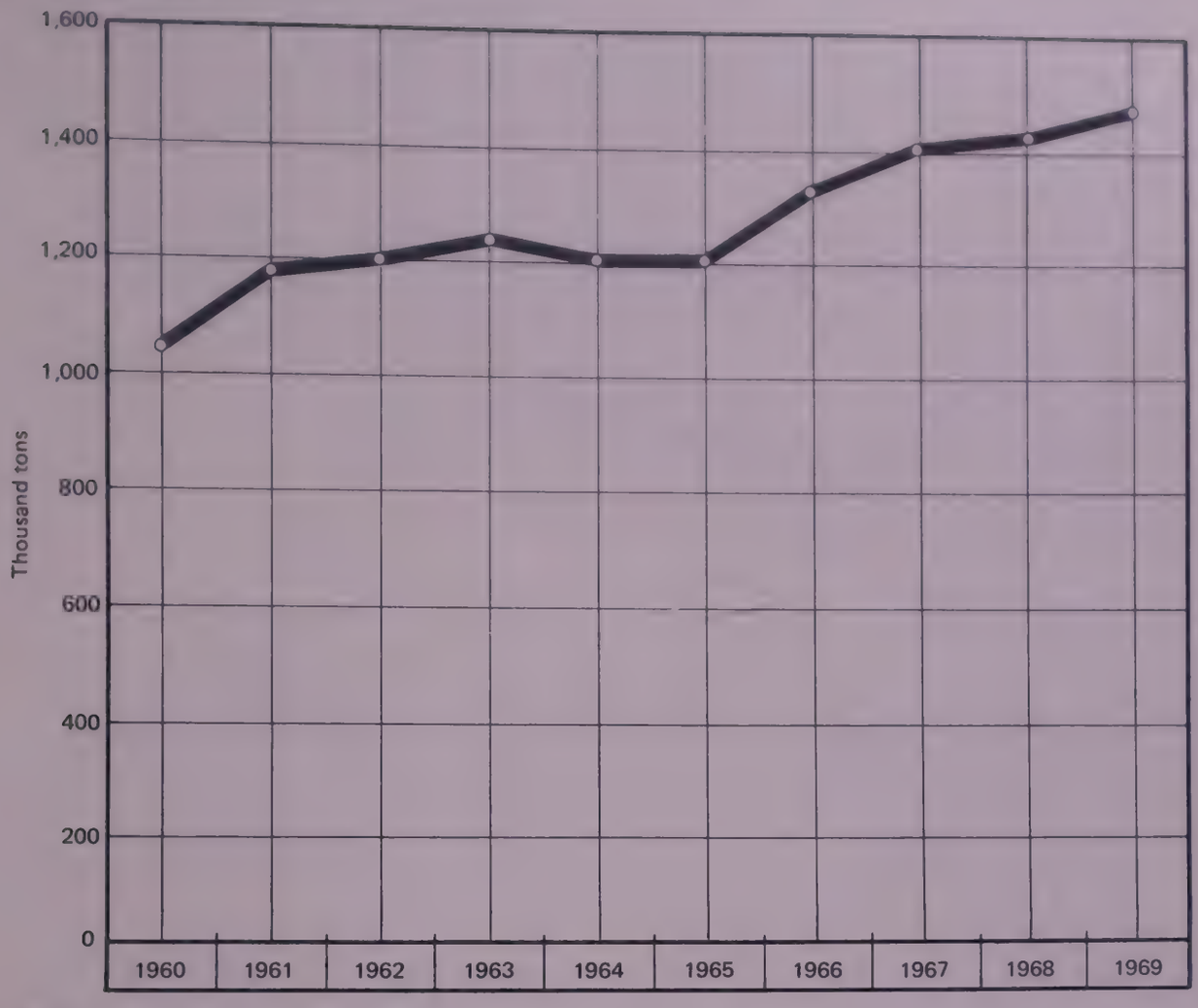
Such details as are available for 1970 suggest that the Japanese catch fell by about 16 per cent and that the United States catch was about the same as in 1969.

* Unless otherwise stated 'tons' in this Report refer to long tons. One long ton is equal to approximately 1.016 metric and 0.893 short tons.

** From 15th May 1972, the Ryukyu Islands became part of Japan.

Diagram 3

Tuna : World catch



Source : FAO *Yearbooks of Fishery Statistics*

The most important tuna caught in terms of weight is the yellowfin followed by skipjack, bonito and albacore (Table A2 and Table 3).

Table 3

Tuna: world catch by species in 1969

	Quantity in thousand tons live weight	Percentage of total
Albacore	209	14.3
Bigeye	130	8.9
Bluefin	100	6.8
Skipjack	264	18.0
Yellowfin	339	23.1
Bonito	221	15.1
Other species*	204	13.8
Total	1 467	100.0

* Including various tuna like scombriforms.

Source: *Table A2*

Japan is normally the biggest lander of all tuna except the bonito in which Peru is predominant. In 1969, her proportion of the world catch varied from 26 per cent for yellowfin to 75 per cent for bigeye. The next most important landers are the USA for yellowfin, bluefin and skipjack and Taiwan for albacore and bigeye. Other countries which are notable in respect to particular species of tuna are Spain for albacore, Ecuador for skipjack, Turkey for bonito and France for albacore and yellowfin.

Of the main species of tuna only yellowfin and bonito have experienced any appreciable increase in catch since the early 1960's. The catch of yellowfin rose from 267 000 tons in 1960 to 339 000 tons in 1969, whilst the catch of bonito went up from 145 000 tons to 221 000 tons. Of the remaining tunas all except the bluefin have shown some increase, mostly confined to the years 1960–64. Part of this rise may be illusory in the sense that it probably reflects an improved collection of statistics. The catch of bluefin has fallen slightly from just over to just under 100 000 tons a year.

Future outlook

Considerable attention has been paid to studying the present state of the world's tuna resources and the scope, if any, for an increase in catch. One of the most recent reviews was that made by the FAO Group of Experts on Stock Assessment[4]. This dealt with the status of the stocks of yellowfin, bigeye, albacore and bluefin. The general conclusion of their findings was that in both the Indian and Atlantic Oceans, (and probably the Pacific) the longline fisheries and some surface fisheries were fully exploited and that increased effort would not result in sustained increased catches but might indeed result in their decrease.

Although there has been some increase in surface catches of tuna in some areas eg in the eastern Atlantic, it is generally thought likely that the only appreciable increases in catch will come from the large and still underdeveloped resources of skipjack in the Pacific, Atlantic and Indian Oceans. The extent of this increase is very difficult to assess but a paper by F. W. Bell[5] presented to the International Conference on Fisheries in 1969 gave an estimate of 1 150 000 *metric* tons for skipjack and an increase of 100 000 *metric* tons for bonito. No increase was given for any other species of tuna.

There have been some attempts to rear tuna artificially. These have been made by the Japanese Fisheries Agency and by the United State Bureau of Fisheries at their Tropical Atlantic Biological Laboratory. Such experiments are, however, unlikely to have any commercial impact on the world catch for the foreseeable future.

Apart from the biological factors limiting the tuna supply there are also an increasing number of limitations on the catch of particular species or on the amount of fishing in particular areas. At the moment most of these limitations are in the form of controls exercised by the governments or fishery bodies of particular countries over the catch of their nationals. Some of these limitations are the enforcement of agreements made between countries such as the controls imposed on surface fishing for yellowfin by the Inter-American Tropical Tuna Commission*, and some are the adoption of recommendations made by international bodies. With the continued improvement in fishing techniques and the extension of tuna fleets it may be expected that such controls will continue and indeed be strengthened. One of the results of this will be for fishing efforts to be concentrated more and more on skipjack, and Japan has announced** that she eventually hopes to treble her catch of this fish. Another likely result is that the entire tuna catch of countries will eventually become subject to quotas in order to

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* A body set up by a number of countries fishing in the Pacific fixing an annual quota on the quantity of yellowfin tuna that can be caught in its area.

** *Australian Fisheries*, August 1970, p.26.

attempt to ensure that fish stocks do not pass the maximum sustainable yield. Lastly, it is likely that more attention will be given to fishing limits. The biggest of these is 200 miles claimed by Ecuador, Peru and Chile but nearly every major fishing country attempts to reserve a minimum areas for its own fleet.

The present and foreseeable features in the tuna fisheries may be summarised as:

1. An increasing number of countries competing for a limited supply of fish.
2. Improved techniques enabling these to be caught more easily.
3. An increased number of controls over the quantity of fish caught, their species and the area of fishing.

Part V

Production of canned tuna

As noted in Part II the main types of tuna used in the canning industry are bluefin, yellowfin and skipjack for the light meat pack, and albacore for the white meat pack. Due to labelling laws bonito is usually sold separately as 'canned bonito'. The term 'canned tuna' includes fish preserved in bottles or other airtight containers.

Table A3 gives the production figures for the main canning countries for the years 1960 to 1969. Total production over the period varied between 327 000 tons and 404 000 tons. There was no discernible trend. During the years 1960–62 production was at an average level of 395 000 tons. Between 1963 and 1965 it was much lower at an average of 333 000 tons. After 1965 production rose and for the remaining years was about 380 000 tons.

The USA is easily the leading producer of canned tuna. Her production rose from 137 000 tons in 1960 to 179 000 tons in 1969, but was relatively stable during the last four years of this period. Of this 179 000 tons, which represented 46 per cent of total world production, 61 000 tons was albacore, 2 000 tons bonito and the remaining 116 000 tons other unspecified light meat tunas.

There are four standard types of canned tuna pack sold in the USA:–

(a) Fancy solid pack.
(b) Standard solid pack.
(c) Chunk style or bite size.
(d) Grated or shredded pack.

Supplies of tuna for canning are obtained both from the home catch and imports, predominantly from Japan.

Japan is the second most important producer of canned tuna. In 1969, her production was 71 000 tons and lower than the 81 000 tons produced in 1960. There has not been any significant trend in her production which has followed the same pattern as that of the world as a whole. The extent to which Japan relies on imports for canning to supplement her own catch is not known but as these have been increasing whilst the home catch has fallen, it is likely that they are becoming increasingly important.

Following Japan as producers there are a group of European countries – Italy, France and Spain. Italy is the most important of these with a level of production of between 30 000 tons and 40 000 tons. This is thought to consist almost entirely of bluefin. Supplies of fish are mainly imported as the Italian catch is small.

Spain and France each produce an annual 20 000 ton 30 000 tons. The composition of the French production is not known but the Spanish, which is rising slightly is largely bonito and bluefin. Canners in both countries rely largely on the

home catch but in the case of canned Spanish bonito this is supplemented by imports.

Of the remaining countries mentioned in Table 3 Peru, the Senegal, Portugal and Equador are the most important. The current level of Peruvian production at 5 000 tons is less than 25 per cent of that in 1960 and is a reflection of the fall in the home catch. Production in 1969 consisted entirely of bonito. In the Senegal, where production in 1969 was 8 000 tons, canning operations are based partly on the catch of the home fleet and partly on those of French boats based in Dakar. Since 1964 when statistics were first recorded production has risen from a level of 5 000 tons and is believed still to be rising. In Portugal, canned production is normally between 5 000 tons and 7 000 tons and, in Ecuador, 3 000 tons and 4 000 tons. In both countries production is based on the home catch.

Most of the principal canning countries produce partly for the home market and partly for export (see also Part VII). The exceptions are the United States and Italy where the entire home production is consumed within the country.

Part VI

Introduction to international trade

The market for raw or canned tuna in a country may be met either by the domestic catch, by imports, or by both. Where the domestic catch is greater than that required by the home market the surplus can be exported. The main tuna landing countries may thus be divided into three main groups:—

(a) Those countries where the catch goes entirely or predominantly on to the home market. Examples of countries where this situation exists are Ceylon, Pakistan, Chile and Australia. Occasionally small quantities of fish may be exported if there is a very high catch or imported if the catch is low.

(b) Those countries where the domestic catch meets home demand and regularly leaves a surplus for export either in raw or canned form. The big exporting countries of Japan, South Korea and Taiwan fall in this section (see Part VI). Sometimes, if home demand rises or the domestic catch falls after export markets have been built up these countries may also become importers, either of raw tuna for subsequent export in canned form or of those types of tuna in which the domestic catch is no longer sufficient. Japan is the best example of a country which has had to import in order to meet the demand from her own established markets.

(c) Those countries where the domestic catch is never or seldom sufficient to meet the demands of the home market; so that they have to import eg the USA and Italy. Also in this section may be placed such countries as the United Kingdom and Switzerland with no domestic fish catch; so that they have to rely entirely on imports to meet home demand.

To these basic types of trading situation may be added the case of countries importing tuna in its raw form with the prime or partial objective of exporting it canned. This occurs in Yugoslavia and Spain, and also in some of the countries in Africa and elsewhere whose ports have grown into trans-shipment points eg the Senegal and Ghana. Many of the canneries in Africa are supplied partly by the catch of foreign boats and partly by that of the home fleet which has been encouraged to grow in order to meet the canneries' demand. Some trans-shipment ports do not have canneries but simply serve as bases at which catches can be collected together before export in bulk.

The trading patterns outlined above are further complicated by the existence of the various species of tuna so that the same country may, for example, import either raw or canned albacore for the white meat market while at the same time exporting other species such as yellowfin and skipjack to meet the light meat demand elsewhere. Often trading statistics are not collected in sufficient detail for this trade to be analysed but its existence needs to be remembered.

It can be said, therefore, that to say a country either exports or imports tuna is nearly always too great a simplification which can only be excused where further information is absent. It is always necessary to know the species of tuna concerned, the form in which it is traded and the reason for that trade before an adequate market picture can be obtained.

Part VII

Exporters

INTRODUCTION

Tuna exports are mainly in two forms. They are either fresh, chilled or frozen (raw), or in some form of airtight container (canned). Before describing the exports of some individual countries in detail it is convenient to outline the overall pattern of exports in each of these forms.

Raw exports

Tables A4 and A4a give raw tuna exports for the years 1960 to 1969. Due to a deficiency in published statistics it has been necessary to impute the exports of some countries from the trade returns of others (ie the exports of country A have been derived by summing imports shown by countries X, Y, Z etc from A). This is a procedure in which it is easy to underestimate the quantity of goods involved and this should be remembered when interpreting the tables. A second feature of Table A4 is that due to inadequately detailed statistics, some of the exports shown are attributed to areas of trans-shipment eg the New Hebrides and the Ryukyu Islands rather than to the country where the fishing boats are owned or registered. It is possible that in some cases this understates exports by double counting but it has been decided to do this as the alternative of omitting them would certainly be a larger understatement. This is particularly so as the exports shown for some countries such as Ghana are of a 'mixed' character, representing partly exports from the particular country and partly trans-shipments.

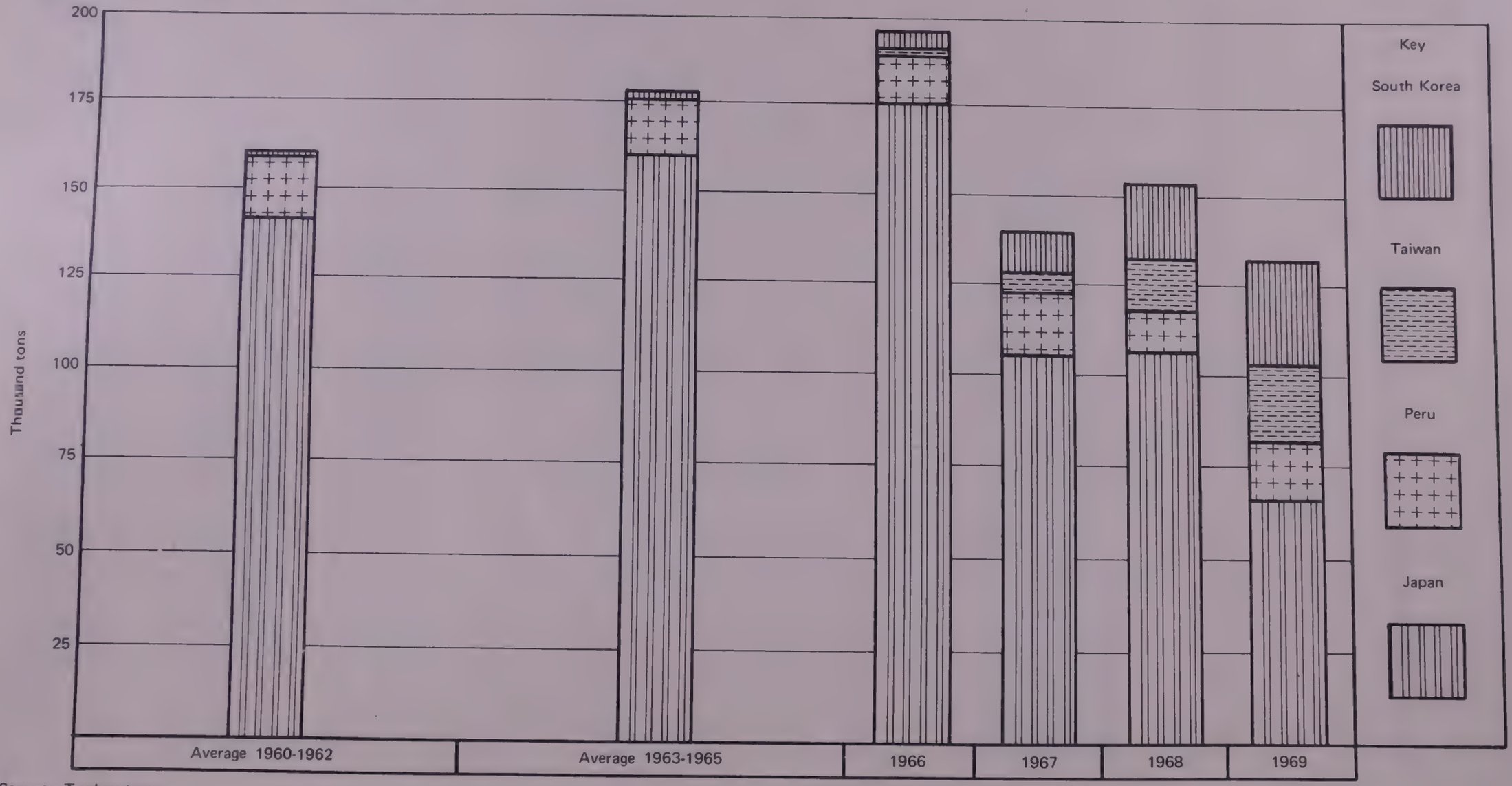
Because of these two factors the total exports shown are only of a very rough order of magnitude. An attempt to simplify these is given in Table A4a where total exports are divided into three parts: those which are taken direct from trade returns; those which are imputed, and those which are partly imputed and partly taken from trade returns.

Total exports over the period have varied between 190 000 tons and 259 000 tons. Since 1966 they appear to have fallen, but it is possible this is due to an inadequate recording of trade since imports (see Part VIII) have been rising. This supposition is borne out by the rising trend in two of the export totals in Table A4a.

The first feature of Table A4 is the number of exporting countries listed. This mainly reflects the number of trans-shipment areas which are marked by 'd'. If these and countries normally exporting less than one per cent of the total are excluded as in Table 4 a clearer picture emerges. Exports from the four major countries are shown in Diagram 4.

Diagram 4

Tuna : fresh, chilled or frozen : exports from selected Countries



Source : Trade returns

Table 4

Tuna: fresh, chilled and frozen: World exports in 1969

	Quantity in thousand tons	Value in thousand £s
Japan	65.4	11,540
Taiwan*	27.3	4,495
South Korea	21.3	3,353
Peru	16.5	837
Ecuador*	8.5	1,053
USA*	5.6	954
Turkey	5.3	743
France	2.9	485
Other countries	65.7	12,122
Totals	218.5	35,582

* Figures imputed from the import statistics of other countries.

Source: *Table A4*

Countries in the above table fall into three groups. In the first are the leading Asian exporters of Japan, Taiwan and South Korea of which Japan is easily predominant. In the next group are the secondary South American exporters of Peru and Ecuador, and in the last are the remaining smaller exporters of the USA, Turkey and France. It should be noted that of the 66 000 tons attributed to 'Other countries' more than 55 000 tons represents trans-shipments, the bulk of which could, with further information, be allocated between Japan, Taiwan and South Korea.

The main change in the pattern of exporting countries occurring during the period was a decline in Japanese exports from a level of 141 000 tons in 1960–62 to only 65 000 tons in 1969. The gap in supply created by this was filled by the emergence of Taiwan and South Korea. A current trend is an increasing quantity of exports coming from the United States. These have been imputed so that it is possible that they are, in fact, rising faster than shown. This may be true about exports from Ecuador which are also on a rising trend. Peruvian exports, however, fell over the period as a whole. This fall was particularly marked between 1963 and 1965 since when there has been some recovery.

The future is likely to see two main trends in the composition of the countries supplying raw tuna, a continued increase in exports from South Korea and Taiwan, and a rise in exports from developing nations. The developing countries concerned are likely to be those with ports which are already focal points for the trans-shipment trade.

Canned exports

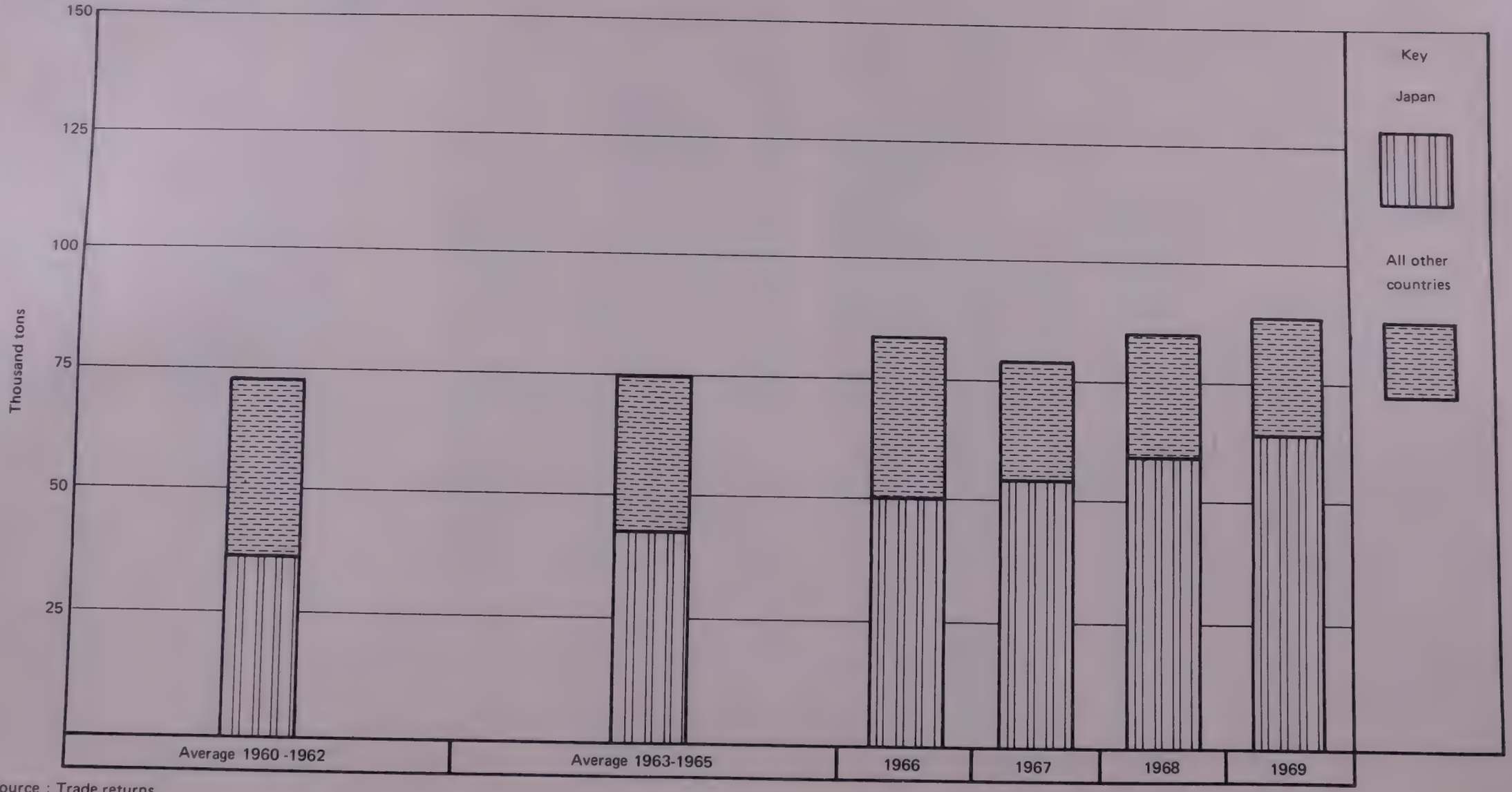
The main countries exporting canned tuna are given in Table A5. As in Table A4 it has been necessary to impute the exports of some countries but as Table A5a shows the quantities involved are much lower than in the raw trade.

Total exports rose over the period as a whole from 73 000 tons (£19.5 million) in 1960–62 to 89 000 tons (£36.3 million) in 1969. This rise was not continuous and there were falls between 1964 and 1965 and again between 1966 and 1967. After 1965 however the value of exports, as opposed to their quantity, rose each year.

Japan is easily the leading exporter of canned tuna. Her share of the market is shown in Diagram 5. In 1969 her exports of 63 000 tons (£27.5 million) were more than two thirds of the total. No other country exports more than 10 000 tons and only the Senegal exports more than 5 000 tons. Unlike the raw trade, Japanese dominance has risen over the period. This has been helped by the fall in

Diagram 5

Tuna : canned : Japan's share of world exports



Source : Trade returns

exports from Peru which were 16 000 tons in 1960–62 but only 3 000 tons in 1969. Other countries which export canned tuna are, in Europe: Portugal, Spain, Yugoslavia and France and, in Africa: Angola, the Ivory Coast and Morocco. Elsewhere, Ecuador now exports a little over a thousand tons a year. West Malaysia, a new exporter using imported supplies, exported 3 000 tons in 1969.

Other exports

Small quantities of tuna are exported in other forms. The species of tuna concerned is usually the bonito and it is traded in three basic forms: salted, dried and smoked, and dried and boiled.

Salted bonito is exported by Turkey. Total exports are normally about 200 to 300 tons and their value is between £50 000 and £75 000. They go almost entirely to Israel but small amounts have occasionally been exported to Yugoslavia, Italy and Greece.

Dried and smoked bonito packed in brine has been exported from Peru to Ecuador. The quantity has varied from 50 tons to 300 tons with a corresponding value of £2 000 to £9 000.

Boiled and dried bonito is traded between Japan and the Ryukyu Islands and a small quantity of some 20 tons is also exported to the United States. Total Japanese exports in 1969 were 659 tons valued at £589 000.

EXPORTING COUNTRIES

Japan

Japan is the leading world exporter of both raw and canned tuna but, as indicated in the previous section, her exports of raw tuna have declined quite appreciably since 1966. The two main reasons for this trend are a fall in tuna landings and an expanding home market.

Tuna is of very great importance to Japan and a number of firms specialise in its exports eg Mitsubishi Commercial, Tokyo Foods, Taiyo Fisheries and Mitsui Bussan. Exports of raw tuna have to be inspected by the Japan Frozen Foods Inspection Corporation which charges fees for its services.

Some Japanese exports go directly from trans-shipment points to market. The quantity of these may vary appreciably from year to year as shown by Table 5.

Table 5

Japan: export targets for frozen tuna from overseas bases in 1968 and 1969

	Metric Tons	
	Business Year*	
	1968	1969
US Samoa	25 000	12 500
Fiji Islands	9 000	4 500
New Hebrides	6 000	3 000
Malaysia (Penang)	6 000	3 000
West Indies (St Martin)	2 000	1 000
Totals	48 000	24 000

* The Japanese Business Year (BY) runs from April 1st to March 31st.

Source: *Commercial Fisheries Review*, May 1969, 31 No.5, p.53.

Apart from handling Japanese exports Japanese trading companies also handle a large share of the catches of the South Korean and Taiwanese fleets*.

Raw exports

The composition and main destinations of Japanese raw exports in 1969 are shown in Table A6. The main species of tuna exported are yellowfin and albacore with smaller quantities of skipjack. This pattern, however, is changing. Since the early 1960s the quantities of yellowfin and albacore exported have fallen by more than 50 per cent. Most of this fall has occurred since 1966. Provisional figures for 1970** indicate that of total exports of 61 000 tons those of skipjack were 20 000 tons. This quantity was higher than that of albacore and only a thousand tons less than yellowfin. This trend may be expected to continue. Until 1965, Japan exported quantities of bluefin, maximum exports of 9 000 tons being achieved in 1964. After that year however exports fell dramatically and are now negligible. Bonito exports are also very small and in 1969 were about 200 tons.

The USA is by far the biggest market for all species of tuna exported from Japan, except for those in the non-specified category (Table A6). Japanese exports there reached a maximum of over 110 000 tons in 1966 (£18.7 million) but by 1969 they had fallen to only 39 000 tons (£7.4 million). As might be expected the biggest drops occurred in exports of albacore, 53 000 tons to 22 000 tons and yellowfin, 43 000 tons to 13 000 tons.

After the USA, Italy is the main market for Japan's raw tuna and in 1969 she took 14 000 tons. This quantity was much less than the 39 000 tons going to the USA but far in excess of anything taken by other countries individually. The bulk of these exports are yellowfin. In the same way as those to the USA, her exports to Italy have also fallen dramatically since 1966 reflecting a transfer of fishing effort away from the Atlantic in response to declining catch rates and a desire to move to fishing areas from where the growing market could be met more readily. Italy has also been adversely affected by the virtual ending of Japan's exports of bluefin for which she was the main market. In 1970 exports to Italy fell further to only 11 000 tons.

Of the other countries listed in Table A6 Spain is of the most importance. Japan's exports there in 1969 were 2 700 tons and valued at £256 000. They consisted largely of skipjack and yellowfin with a small quantity of albacore.

Japan's exports to Fiji, Malaysia*** and Ghana in 1969 were all about 2 000 tons. These countries, however, are all areas of trans-shipment and it is not known of the extent to which these were final destinations.

Other smaller markets for Japanese raw tuna are Canada, Yugoslavia, France and Denmark, whereas in the past Czechoslovakia, Libya and Tunisia have also been supplied.

Canned exports

Japan exported 63,500 tons of canned tuna in 1969 to the value of £27.5 million. Her exports rose almost continuously between 1960 and 1969 and are believed to have risen again in 1970 to 65 000 tons.

The composition of Japan's exports and her main markets in 1969 are given in Tables A7 and A8. Of the total exports 29 000 tons were albacore. The remaining 34 500 tons included over 15 000 tons of canned bonito. Although the

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* This quantity is believed to have been 60 000 tons in 1968[3].

** Unless expressly stated 1970 statistics quoted in this Report must be regarded as provisional.

*** The general term 'Malaysia' is used in the test when the exact area is not known.

quantity of albacore exported was less than that of other tunas, it was of greater value (£14.9 million compared with £12.6 million). It has been noted that Japan's exports of frozen skipjack are increasing. There is a similar trend in her canned trade towards using more of this species. This is shown by the fact that, in 1970, canned bonito disappeared as a statistical category and was replaced by skipjack. Exports of canned skipjack in 1970 are thought to have been over 20 000 tons.

Tuna is exported from Japan in three specified forms excluding those contained in the category 'other exports'. These are: in oil, in brine, and in jellies or tomato paste. Albacore exports are mostly packed in brine, other tuna mostly in oil. In 1970 a considerable quantity of both albacore and other tuna exports (some 30 000 tons) were recorded as being packed in water. On the other hand, no exports in brine were listed.

Japan's exports of canned tuna go predominantly to the USA and the Federal Republic of Germany (hereafter called 'West Germany' in the text) and in 1969 these countries took 31 000 tons (15.2 million) and nearly 13 000 tons (£4.1 million) respectively. Exports to the USA are mainly of albacore in brine whilst those to West Germany are entirely of other species. West Germany is the main market for the small quantity of tuna and bonito exported in jellies and tomato paste.

Other countries to which Japan currently exports more than a thousand tons of canned tuna are the United Kingdom, Canada, Switzerland, Belgium (including Luxembourg), the Netherlands and the Ryukyu Islands. None of these take more than 5 000 tons and all except the United Kingdom and the Ryukyu Islands are markets for both albacore and the other canned tunas. Neither the United Kingdom nor the Ryukyu Islands import any albacore.

Apart from exporting to those countries mentioned, Japan also sends smaller quantities of canned tuna to the majority of countries in Europe and the Middle East. These amounts are normally between 100 and 1 000 tons a year. The most notable of these countries are, in Europe: Austria, Sweden, Malta and Italy, and, in the Middle East: Syria, Kuwait, the Lebanon and South Yemen.

The pattern of trade outlined above was influenced during 1971 by a number of problems associated with Japan's exports to the USA. These were listed in the September and October 1971 issues of the *Commercial Fisheries Review*: the seizure of more than 100 000 cases of canned tuna by the United States Food and Drug Administration either because of their mercury content or because of decomposition*; the import surcharge (since abolished) and the Japanese revaluation of the yen.

Some of these factors are more important that others and it is too early to assess whether any are likely to have much long term impact. However it is to be expected that canned exports to the USA will be shown to be well down when the 1971 trade statistics are published.

Taiwan

Taiwan is estimated to be the second largest exporter of raw tuna and in 1969 her exports were at least 27 000 tons (or about 12 per cent of the world total). Since the export figures given in Table A4 are imputed they must be regarded as a minimum.

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* 35 000 cases due to their mercury content and 92 000 cases due to decomposition reported in *Commercial Fisheries Review*, 1971, 33 (10), p.27.

Nearly all Taiwan's exports go through trans-shipment points such as American Samoa, Abidjan, Penang and Tamatave. A large proportion of the trade is handled by Japanese trading companies. The Taiwanese Tuna Exporters Association formed in 1970 undertakes research and helps to promote the export trade. The growth of the industry in the 1960s has been helped by loans from the World Bank, and exports have risen rapidly since 1965.

The main markets for Taiwan's raw tuna are Japan and Italy. Smaller quantities go to the United States, and to West Malaysia for trans-shipment. The quantities going to these four countries in 1969 are given in Table 6.

Table 6

Taiwan: exports of fresh, chilled and frozen tuna in 1969

	Thousand tons	Thousand £s
Japan	11.8	1 770
Italy	8.3	1 639
West Malaysia	4.4	570
USA	2.8	516
Totals	27.3	4,495

Source: *Trade returns of importing countries.*

A detailed picture of the species of tuna exported cannot be given due to the absence of Taiwanese trade statistics. However, the main species of tuna landed by Taiwan are albacore, skipjack and yellowfin; so that exports will largely consist of these. In particular, exports to the United States are known to be mainly yellowfin with a smaller quantity of albacore.

South Korea

The rise of South Korea as an exporter of raw tuna has taken place only since 1966; so that only a very limited amount is known about her trade. This is organised in a similar way to that of Taiwan with the bulk of exports going through trans-shipment points and being handled by Japanese traders. Most of South Korea's boats are owned by a public corporation.

Exports recorded by South Korea for 1969 are given in Table 7.

Table 7

South Korea: exports of fresh, chilled and frozen tuna in 1969

	Thousand tons	Thousand £s
USA	17.4	2,741
South Africa	1.5	251
Japan	0.8	95
Other countries	1.6	266
Totals	21.3	3,353

Source: Foreign Trade of Korea, Ministry of Finance.

It will be seen that the United States was South Korea's main market. The species of tuna concerned are believed to be mainly albacore and yellowfin.

The above figures should be treated with caution since exports recorded to the USA and Japan are quite different from the imports recorded by those countries, ie in 1969 the United States recorded 2 200 tons and Japan 7 800 tons. The

main reason for these large discrepancies probably lies in the inadequate recording of the trade at the trans-shipment points at which some of South Korea's exports may be canned before being re-exported.

Peru

Raw exports

Peru is the fourth largest exporter of raw tuna. In 1969 her exports were 16 500 tons (£837 000). This was lower than in the period 1960–63 but higher than in most years since. The composition and destinations of Peru's raw exports are given in Table A9. Skipjack is the main species of tuna traded and the USA (taking more than 75 per cent of the country's exports), is easily the main market.

Apart from skipjack, Peru also exports a small quantity of bonito. The amount of these is normally 2 000 to 3 000 tons. They go to Yugoslavia and Argentina.

Until 1966 Italy was another small market taking a little over a thousand tons a year. This trade, however, seems to have ceased.

Canned exports

Peru's canned exports have shown a steady fall throughout the 1960's from an average level of 16 000 tons in 1960–62 to only 3 000 tons in 1969. Despite this fall she was still, in 1969, the world's third largest exporter (but only exported five per cent of the quantity of Japan).

One of the reasons for the drop in Peru's exports is much lower catches of bonito, the species of tuna used for canning. In 1961, the catch was over 100 000 tons but by 1969 it had dropped to less than 60 000 tons. Another reason is rising domestic consumption. A Centre for the Utilization of Fish for Human Consumption was formed in 1969 and it may be that this trend will continue. Peru prohibits the import of tuna and therefore any expansion of home demand has to be met by the domestic catch.

Canned bonito is exported in oil, in brine, in tomato sauce and in water (Table A10). The United Kingdom is the biggest market followed by Canada, the Netherlands and the USA (Table A11). A feature of Peru's canned trade is the large number of countries involved as will be seen by the size of the 'other countries' category in the table. This is the result of Peru maintaining many of the markets she built up when her exports were at a higher level. The most important of these markets are Belgium, West Germany, Sweden, Panama and Uruguay.

Ecuador

Ecuador exports both raw and canned tuna. Raw exports, which in 1969 were 8 500 tons (imputed), have risen slowly since 1960. By contrast canned exports have fallen slightly in recent years to their current level of 1 000 tons.

The main species of tuna exported raw is the skipjack and it is probable that the bulk of canned exports also consist of this fish. The only other species known to be exported is the yellowfin.

Virtually all tuna from Ecuador, both raw and canned goes to the United States. Raw exports, which are subject to an export tax go first to Puerto Rico for canning.

United States of America

The USA is noted more as an importer than as an exporter of tuna. However, in recent years some boats of the American fleet operating in the eastern Atlantic have begun landing their catch in European countries. Generally, the tuna exported in this way is that regarded as being unsuitable for the home market. Such exports tend to be very variable and their recording uncertain. They are, in fact, not recorded by the USA as a separate commodity and the 1969 exports of 5 600 tons have been imputed from the trade returns of the European countries concerned. These are Italy, Yugoslavia and Spain. Normally, Yugoslavia is believed to be the main market and recorded imports of over 2 000 tons in 1968. In 1969 no imports were recorded by Yugoslavia from the USA but Italy recorded 3 600 tons and Spain 1 700 tons.

A small quantity of American tuna, some hundred tons, is exported to Japan.

Turkey

Turkey exports raw bonito to a number of European countries. The total quantity of these exports varied appreciably in the period 1960–69 between almost nothing and 6 000 tons. In 1969 total exports were just over 5 000 tons and were valued at £743 000.

Destination figures have not been recorded since 1966. At that time Greece and Yugoslavia were the main markets followed by Italy, Bulgaria and Czechoslovakia. Small quantities were also exported to Israel and Syria.

France

France exports 2 000–3 000 tons of raw tuna a year and 600–700 tons of canned. Italy is the most important market for the raw tuna which is of the albacore, yellowfin and skipjack species. Other destinations are the USA and Algeria.

Switzerland is the only notable market for French canned tuna taking 200–300 tons each year. Much smaller quantities of up to 50 tons go to a large number of African countries such as the Ivory Coast and the Cameroon.

The Senegal

The Senegal exports between 5 000 tons and 8 000 tons of canned tuna every year. This quantity is the second largest in the world, but is small compared with Japan's figure of over 60 000 tons.

The Senegalese tuna industry is closely connected with France. Nearly 70 per cent of the catch, which is of skipjack and yellowfin, is made by French boats and over 90 per cent of canned exports go to France. It is possible that this situation will change when a greater proportion of the catch is made by the home fleet but it is likely that for the foreseeable future France will be the main market.

The remaining ten per cent of canned exports go to the USA and West Germany.

Other exporting countries

Raw tuna

These may be conveniently considered on a regional basis.

(a) North and Central America

Canada and Mexico export small quantities of raw tuna of from 1 000 tons to 3 000 tons. Although Panama is also given as an exporter in Table A4 it is believed that this reflects Taboga's trans-shipment trade, since FAO statistics do not show any catch of tuna by the country. Recently, exports have additionally been recorded from Cuba, mainly to Italy.

All raw exports from Canada and Mexico go to the USA for canning.

(b) Europe

Until 1962 Norway exported a large quantity of bluefin tuna, mostly to Italy. After 1962 her catch experienced a considerable fall and since then exports have never exceeded a thousand tons. These go to Sweden, Denmark, Germany and Italy. In 1969 a small quantity went also to Japan.

Spain normally sells all her catch to the domestic market or exports it in canned form. However, in some years part of it is also exported raw, usually to Italy and Portugal. In 1964 her exports reached their highest level of 6 000 tons and went to the Ivory Coast and Sierra Leone.

(c) Africa

The trade returns of a number of countries show imports of raw tuna from Africa. The most important African countries concerned are the Ivory Coast, and Mauritania with smaller amounts coming from Ghana, Morocco and Angola. All of these countries except Morocco are areas of trans-shipment and the exports shown in Table A4 (which are imputed) reflect this trade as well as the export of the domestic catch. 'Exports' from the Ivory Coast, Mauritania and Ghana go mainly to the USA while those from Angola go to Portugal. The Moroccan tuna catch is largely used for canning but small quantities of it go in raw form to France, Portugal and Spain.

Sierra Leone and South Africa, although recorded as sources of raw tuna by some countries are not thought to have, at this time, any significant catch themselves, so that exports attributed to them probably reflect the trans-shipping trade of Freetown, Capetown and Durban.

(d) Rest of the world

Of the remaining countries in Table A4 the Ryukyu Islands and the Philippines are of most importance.

The Ryukyu Islands are an operating base for Japanese boats. There is also a domestic catch which in 1969 was 14 000 tons. Much of this is bluefin and is exported to Japan. Total exports in 1969 were 8 500 tons.

Exports from the Philippines are much smaller, normally between 700 and 1 000 tons but plans have been announced* for their increase. The main markets are Japan and the USA.

Australia and Chile have recorded occasional exports in quantities of up to 2 000 tons to the USA and Spain respectively.

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* *Philippine Fishing Journal*, Feb 1970, p.28.

The other countries listed in Table 9 eg the New Hebrides, the Pacific Islands and West Malaysia are mainly areas of trans-shipment.

Canned tuna

(a) Europe

Many European countries export canned tuna. The most important of these are Spain, Portugal and Yugoslavia.

Spain exports 2 000–3 000 tons of canned tuna each year. Supplies of raw tuna are obtained partly from the domestic catch and partly from imports. Exports are mainly of light meat tunas with a small quantity (200 tons) of white. Of the light meat tunas canned bonito is the most important and exports in this form were 1 400 tons in 1969. Small quantities of Spanish tuna are exported to more than 15 different countries but only Switzerland, Italy and Belgium take regularly more than a 100 tons a year. Of these three countries Switzerland is easily the most important and in 1969 Spanish exports to her were 1 100 tons. Smaller amounts of Spanish exports go the USA, West Germany, France and the United Kingdom.

Portuguese exports are of a similar amount to those of Spain. They fell slightly after 1966 and are now, on average, 2 000 tons a year. Canned bonito forms about 20 per cent. The remainder are classified for trade purposes simply as 'tuna in oil' but as albacore forms over 40 per cent of the Portuguese catch it is likely some exports are of white meat. Italy is the most important market for Portugal and in 1969 took 1 700 tons (£575 000) of her total exports of 2 700 tons (£957 000). Belgium and Switzerland are other markets.

In 1969 Yugoslavia exported 1 600 tons of canned tuna (figure imputed). This quantity was about the same as in the four previous years but lower than in the period 1960–64. Although there is a small domestic catch most of the tuna used for canning is imported. Exports go almost entirely to the European Economic Community (thereafter called 'EEC'), Belgium, West Germany and France being the most important individual countries.

Italy, West Germany and the Netherlands are also exporters of canned tuna but only Italy regularly exports more than a 100 tons. Switzerland and the USA are her most important markets.

(b) Africa

Apart from the Senegal (see earlier in this Section), other African countries exporting canned tuna are Morocco, Angola and the Ivory Coast.

Exports from Morocco were 800 tons in 1969. This was considerably lower than in the period 1960–64 when an average of 3 000 tons a year was exported. The fish for canning came from the domestic catch. Small quantities of exports go to a large number of countries but only France and Italy are of any importance.

Unlike those from Morocco, exports from Angola rose during the 1960's and reached over 3 000 tons in 1968. The USA is Angola's main market. She is followed by Portugal, Mozambique and Italy.

The figures quoted in Table A5 for exports from the Ivory Coast are imputed and therefore need to be treated with caution. However, it would seem that their quantity has varied between 300 tons and 1 800 tons. They reached their maximum in 1968. Nearly all exports go to France.

(c) Rest of the world

Exports from West Malaysia have risen rapidly since they were first recorded in 1967 and had reached 3 100 tons (£280 000) by 1969. West Malaysia has no catch of tuna itself, so that all tuna used for canning has to be imported. The USA is the market for 75 per cent of West Malaysia's exports. Small quantities go to the United Kingdom and West Germany.

Part VIII

Importers

INTRODUCTION

Imports of tuna arise when the domestic catch is insufficient to meet domestic demand. The factors that influenced the level of this demand during the period 1956–66* have been investigated by F W Bell of the United States Bureau of Commercial Fisheries. He concluded that the main determinant of the increase shown was the rise in living standards. Further increases in demand are likely to be limited by the slow rate of growth of the world catch. This has lagged behind the growth in the potential market and, as illustrated in Part IX, brought steadily rising prices.

Similar considerations apply to the level of imports of particular tuna species. It was noted in Part IV that there has been little increase in the catch of albacore since 1963. This is the most expensive tuna and as it has risen in price part of the demand for it has been met by cheaper species. This process may be expected to continue and also to extend to the various light meat tuna. Consequently the future is likely to show the biggest expansion in imports of skipjack, since it is this species which has the greatest supply potential.

The levels of imports into particular countries are sometimes controlled by quotas or are even prohibited eg quotas operate in both the USA and in the EEC, and Peru operates a prohibition. To a lesser extent they are affected by the health, packaging and labelling requirements. Details of these requirements where available are dealt with under the name of the country or area concerned.

During 1971 imports from some countries, mainly Japan, were also affected to a limited extent by the finding of high levels of mercury compounds in canned tuna in the USA at the end of 1970. Extensive investigations followed. In the USA a massive programme of testing was instituted and in the United Kingdom a working party was set up to investigate the presence of mercury and other heavy metals in foods. The conclusions reached by these studies are set out in Appendix D. The affects of the problem on individual markets, so far as they are known, are dealt with later in this section. The general and very tentative conclusion is that after an initial reaction imports have resumed the trends they showed before the question of mercury contamination arose.

Raw tuna

Table A12 gives imports of raw tuna for the years 1960–69. Some of the figures are imputed in the same way as was done with exports, except in this case they are naturally derived from the export statistics of those countries concerned. The breakdown of the total figure into its recorded and imputed parts is given in Table A12a.

*For the United States the period covered was 1947–67.

Total imports of raw tuna rose from 166 000 tons (£17.8 million) in 1960–62 to 256 000 tons (£44.7 million) in 1969. The main overall pattern since 1963 has been for a rise one year to be followed either by a fall or at least no further rise in the year following. Thus 1964, 1966 and 1968 were years of growth and 1965, 1967 and 1969 were years in which growth was checked. Due to the unreliability of the import figures quoted for some countries the exact size of these fluctuations should be treated with caution. However, there is little doubt that they exist, or that they are a reflection of the trade of the USA which is easily the largest importer of raw tuna. The trend of imports into the major importing countries is illustrated in Diagram 6.

Preliminary figures for 1970 show that imports, for those countries for which details are available were either the same or slightly up on 1969.

A comparison of Table A4 (raw exports) and Table A12 shows that in nearly all years there was a large disparity between total exports and total imports. This disparity is even more marked if total recorded exports (Table A4a) are compared with total recorded imports (Table A12a). Until 1966, exports exceeded imports by amounts of up to 35 000 tons (1964). After 1966 there was an import 'surplus' with a maximum of 44 000 tons in 1968. The reasons for these discrepancies are not known for certain but several probable explanations may be surmised. The practice of South Korean and Taiwanese exports being handled by Japanese trading firms may well result in an understatement of exports from these two countries and an overstatement of imports from Japan. (This may be the main reason why imports recorded by the USA from Japan in 1969 exceeded those recorded by that country to the amount of 30 000 tons). It is also probable that some imports are sometimes recorded twice both at a point of trans-shipment and at their final destination. The surplus of exports at the beginning of the period is possibly the result of the fact that, until 1965, the USA was the only big importer to record her trade so that imports into some of the countries in Table A12 eg Yugoslavia and Italy may be understated.

The dominance of the USA as an importer of raw tuna has been noted. Table 8 gives her imports in 1969 and those of the other significant countries.

Table 8

World imports of fresh, chilled and frozen tuna in 1969

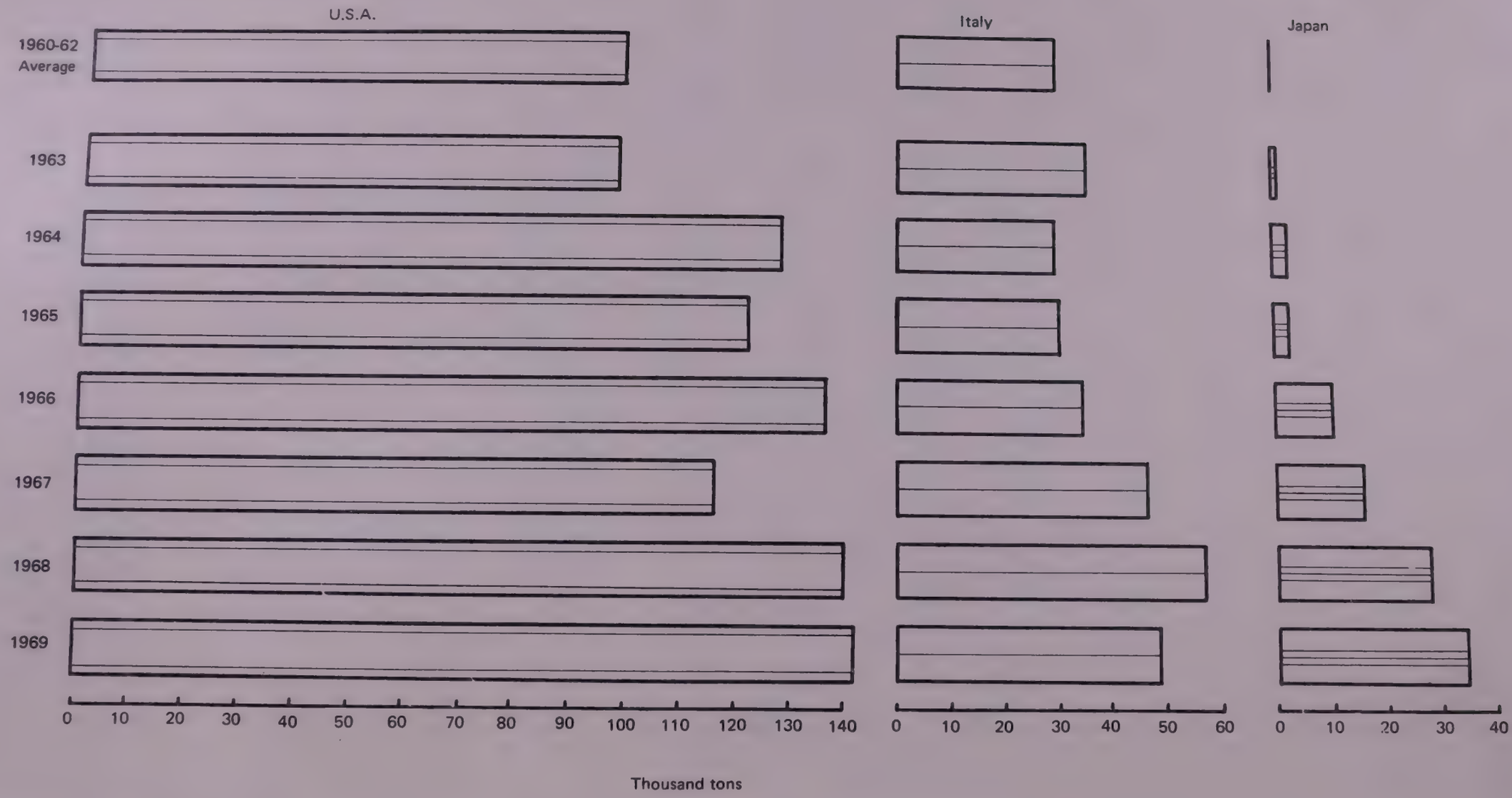
	Thousand tons	Thousand £s
USA	141.7	24 750
Italy	48.3	9 191
Japan	34.6	5 879
Spain	4.9	694
Yugoslavia	3.3	476
France	2.6	625
Canada	1.6	311
Other countries	19.0	2 768
Totals	256.0	44 694

Source: Table A12

The main change occurring during the period 1960–69 in those countries comprising the main markets was the increasing importance of Japan. In 1960 her imports were negligible but in 1969 she was the third leading importer after the USA and Italy. Until 1965 Spain also imported only small quantities of raw tuna. In contrast French and Yugoslav imports fell over the period as a whole whilst those into Canada in 1969 were much lower than they had been for some years. It may be noted that the 'other countries' figures given in the above table includes 18 000 tons into areas of trans-shipment such as US Samoa.

Diagram 6

Tuna : fresh, chilled or frozen : imports into selected Countries



Source : data of Table A12

Canned tuna

Total imports of canned tuna rose from 67 000 tons (£19.1 million) in 1960–62 to nearly 84 000 tons (£34.8 million) in 1969 (Tables A13 and A13a). The trade followed a similar pattern to that of raw tuna, except in 1969 when canned imports were higher than in the previous year but raw imports were lower. Unlike the raw trade there was generally little discrepancy between total imports and total exports.

Table 9 shows the leading importers in 1969.

Table 9

World imports of canned tuna in 1969

	Thousand tons	Thousand £s
USA	33.6	15 898
West Germany	14.8	5 061
France	9.7	3 528
United Kingdom	4.9	1 987
Italy	3.9	1 497
Switzerland*	3.6	1 790
France	3.4	1 536
Belgium	3.4	1 147
Other countries	6.3	2 390
Totals	83.6	34 834

* imputed

Source: Table A13

Diagram 7

Tuna : canned : imports into selected Countries

Source : data of Table A13

The main markets for canned tuna are in the USA and Europe. The USA is the most important individual importer and takes more than twice as much as any other country (Diagram 7). She is followed by the countries of the EEC (excluding the Netherlands), the United Kingdom and Switzerland. Outside Europe and the USA the markets are much smaller and only the Ryukyu Islands imported more than a thousand tons in 1969. A small regional market exists in the Middle East in such countries as Kuwait and Saudi Arabia.

The 1960s did not show many important changes in those countries importing large amounts of canned tuna. Nearly all countries increased their imports during the period, although some markets such as the USA grew more slowly than others. Italy was the only exception to this trend and her imports in 1969 were little more than half their quantity in 1960–62.

IMPORTING COUNTRIES

United States of America

The USA is the leading world market for tuna. Aggregate consumption in 1969 was 209 000 tons representing 2.3–2.4 lb per capita. Its growth since 1960 is in Table 10.

Table 10

USA: growth of tuna consumption*

	Thousand tons (edible weight)
1960	158
1961	165
1962	175
1963	172
1964	181
1965	183
1966	203
1967	203
1968	207
1969	209

*These figures represent the changes in the total amount of tuna supplied both from the domestic catch and imports.

Sources: *Food Fish Products Situation and Outlook,* US Dept of Commerce. June 1970, p 60

Consumption in 1969 was about 50 000 tons higher than in 1960. The most rapid rate of growth occurred between 1960 and 1964. Since 1966, consumption has risen only slowly.

Tuna's level of consumption means that it accounts for about 21 per cent of the total fish and shellfish consumption (11.1 to 11.3 lb) in the USA. A considerable amount of work is done there on the pattern of the market and per capita consumption is broken down by such factors as region, income, occupation and religion. A study in such depth is beyond the scope of this Report but, for those interested, details may be obtained from the periodical *'Food Fish – Canned Products, Situation and Outlook'* produced by the National Marine Fisheries Service of the US Dept of Commerce.

Bell in his study of the factors affecting tuna consumption[5] found that for the USA the two most important were per capita income and price. According to his analysis based on the years 1947 to 1967 a ten per cent increase in per capita income was associated with a 14 per cent increase in consumption and a ten per cent increase in prices was associated with a ten per cent decrease in consumption. The extent to which these relationships can be used as a basis for prediction is uncertain but they are certainly worthy of note.

About 40 per cent of the USA market demand for tuna is met by the domestic catch, the rest by imports in either raw or canned form. The proportion met by canned imports, approximately 15 per cent, is kept roughly constant by a control on the amount imported. This is achieved by an import quota fixed at 20 per cent of the previous year's domestic pack. The quota is not an absolute barrier but any canned tuna imported over its limit has to bear twice the current rate of duty. In practice, imports are normally within the quota and 1959 was the last year in which it was exceeded.

Raw tuna imports

In 1969 the USA imported over 140 000 tons of raw tuna valued at £24.8 million. This quantity was the highest ever recorded and nearly 40 000 tons higher than imports in 1960. The annual amounts shown in Table A12 tend to fluctuate according to the size of the home catch. Thus taking as an example the years 1964 to 1968, the home catch rose in 1965 and 1967 and imports fell. In 1966 and in 1968 the catch was lower than in the previous year and imports rose. Despite these fluctuations the trend of imports is upwards. Between 1960 and 1963 their average level was 104 000 tons, between 1964 and 1966 it was 129 000 tons and between 1967 and 1969 it was 133 000 tons. Provisional figures for 1970 indicate that imports reached a level of 154 000 tons.

The composition and main sources of American imports are given in Table A14. Albacore is the main species imported followed by yellowfin.

Until 1969, when they reached nearly 71 000 tons (£14.3 million), albacore imports were normally between 55 000 tons and 60 000 tons each year. They jumped to this level from an average of 34 000 tons between 1960 and 1964. In 1970, their level was similar to that for 1969 but their value considerably higher at £18.2 million.

Japan is the main source of albacore and she supplied about 60 per cent of American imports. This proportion is likely to have been lower in 1971 as some shipments were held back pending the findings of the Food and Drug Administration's investigations into mercury.

Other areas supplying much smaller quantities of albacore are Malaysia, the British Pacific Islands, South Africa and Sierra Leone. (These countries are not necessarily those which land the fish as they are all trans-shipment points).

Other tunas

Imports of yellowfin remained fairly level in the 1960's fluctuating between 45 000 tons and 55 000 tons. Imports of skipjack were normally between 20 000 tons and 25 000 tons. A small amount of bonito is also imported but it is insignificant compared with other tunas. In 1970 yellowfin imports were just over 50 000 tons and those of skipjack reached a record of nearly 29 000 tons. A further increase in imports of skipjack is reported for 1971.

Imports of yellowfin come mainly from Japan, those of skipjack from Japan, Peru and Ecuador. The large increase in skipjack imports in 1970 came almost entirely from Japan.

Canned imports

Unlike imports of raw tuna, those of canned have not shown any tendency to increase. The 1969 level of 33 600 tons (£15.9 million) was similar to that for the three previous years and only slightly above the 30 000 tons of the years

1960–62. The main reason for this is probably the quota system mentioned earlier. This means that it is more profitable for tuna to be supplied in raw form for canning than to cross the high tariff barrier reached once the quota is filled. In 1970, imports were very slightly lower in quantity terms than in 1969 but their value was considerably higher at £19.3 million.

Table A15 shows that the structure of trade for canned imports is similar to that for raw. Albacore forms about two thirds of their total and virtually all the albacore is supplied by Japan. Portugal and Angola are the only other countries providing more than a hundred tons.

Japan is also the main supplier of light meat tuna. Ecuador is another source of imports but in recent years these have been falling. Further small quantities come from Angola and Portugal but these amounts are usually under a thousand tons. Such information as is available for 1971 suggests that imports would be at or slightly below their normal level. However their composition and origin is likely to have been significantly different. Higher prices and competition for supplies precipitated a shift in imports away from albacore to other species, particularly skipjack. Also the impediments suffered by Japan (see Part VII) are likely to have resulted in a considerable drop in imports from that source.

Virtually all canned imports are packed in brine. This is due to the nature of the tariff structure surrounding the market (see below) which is heavily biased against any tuna packed in oil.

Tariffs

United States of America tariffs are given in Appendix E. Their structure is complicated due to the fact that different rates are levied according to the packing medium and the source. All raw tuna (including bonito) is admitted duty free providing that it is landed by American boats. Canned tuna not in oil bears a seven per cent *ad valorem* duty which increases to 25 per cent *ad valorem* if it comes from Communist countries. The seven per cent increases to 15 per cent for any tuna imported in excess of the quota. Canned tuna in oil is subject to a 35 per cent rate of duty (45 per cent if from Communist countries) and canned bonito one of nine per cent (30 per cent if from Communist countries). Certain of these duties were slightly reduced on 1 January 1972 under agreements made in the Kennedy Round negotiations.

Food regulations governing imports

All food imports into the USA are governed by the provisions of the Food, Drug and Cosmetic Act[6]. This lays down that all imported food is subject to inspection to ensure that it complies with the Act. If the food is found not to comply it is subject to re-exportation or destruction. The standards laid down are contained in the Code of Federal Regulations Title 21[7] and include most imported food. The standards for tuna are contained in Section 37 and cover the following matters: identity, eg canned bonito must not be described as tuna; the types of pack; the colour designation; the packing media; the seasonings and flavourings; how the colour designation is to be assessed and the labelling provisions required when sodium acid pyrophosphate is added. Another part of Section 37 specifies the proportion of tuna to packing medium required in different sizes of can.

Frozen tuna imports escape most of the quality standards but are still liable to meet those governing definition and labelling. Also, if any preservative has been used to maintain them in fresh condition this must be stated.

Apart from these provisions a dockside testing programme is being carried out into the mercury content of tuna imports. The total number of seizures under

this programme are not known but it was reported in the *Commercial Fisheries Review*, September 1971, p 61 that from January to late July of that year the United States Food and Drug Administration had detained 35 000 cases of Japanese canned tuna.

Market prospects

During the 1960's consumption (as measured by tuna supplied to the market) expanded at an average annual rate of three per cent. In 1970 the rate was seven per cent despite an increase in retail prices of 12 per cent. However, it is known that tuna demand is inversely affected by its price and those of competing products such as salmon; so that there is a limit to what the market will absorb. So far as the overall demand for tuna is concerned there is little to suggest that this limit has yet been reached but it is probably correct to say that the demand for the smaller species such as skipjack is better than for the bigger and more expensive yellowfin and albacore. There are two main reasons for this. The most important is simply that skipjack has a price advantage for canners. The other reason concerns the findings of the investigations carried out in the USA into the mercury content of various tunas (see Appendix D).

The few fish that have been found to possess high mercury levels have been mostly yellowfin and bigeye. Possibly due to this the domestic canning industry in the USA has recently shifted its efforts towards processing the smaller species of tuna* and skipjack has been the species which has benefited most by this shift. It is unlikely that this factor will prove important in the long term.

Japan is likely to continue to be the dominant supplier to the United States market, particularly if her plans to raise her catch of skipjack are successful. Despite this there is undoubtedly room for other suppliers if they can supply fish at competitive prices.

In conclusion the short term market prospects are good, particularly for skipjack. The long term ones will depend upon the ability of suppliers to keep price increases in check.

The European Economic Community (EEC)

Imports of raw and canned tuna into the EEC are given in Tables A16 and A17. Italy is the only significant importer of raw tuna but all the countries, except the Netherlands, import quantities of canned tuna.

The individual markets will now be dealt with separately. Tariff details will then be given for the EEC as a whole since much of the tariff structure is common to all countries.

1. Italy

Italy imports tuna in both its raw and canned forms. Raw imports are easily the more important and in 1969 they were 48 300 tons as opposed to canned imports of 3 900 tons. Most of these raw imports are intended for Italian canneries. Apart from being canned, tuna is also retailed fresh, dried and salted, and in the form of roe.

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*Reported in *Food Fish – Canned Products Situation and Outlook*, August 1971, p. 28.

Raw imports

Although Italy is the second largest importer of raw tuna 1965 was the first year in which she recorded her imports. Between 1965 and 1968 these rose each year to a peak of 56 800 tons (£11.2 million). In 1969, imports fell to 48 300 tons (£9.2 million) but in 1970 increased to 50 900 tons (£12.7 million).

Until 1968 75 per cent of Italian raw imports came from Japan. However, Italy was one of the main countries to be affected by the fall in Japanese exports and in 1969 and 1970 only 50 per cent of her imports came from that country. The gap left by Japan has been filled to a certain extent by increased imports from Spain, Taiwan, South Korea and the USA. The raw tuna imported from America is thought to be yellowfin, bluefin and bigeye which are unacceptable on the American market since the canned product they make is very dark.

Italy does not record the species of tuna involved in the raw import trade but from the evidence of Japanese trade returns it is likely that yellowfin is the most important. Italy was the main market for Japanese bluefin until the supply was virtually ended after 1967.

The tariff on raw imports is given at the end of this section. Its rate will be determined by whether the annual quota fixed on raw imports for canning by the EEC has been reached. Since Italy is the main importer of raw tuna in the EEC she is the country mainly affected by the existence of a quota.

Canned imports

Italian imports of canned tuna come mostly from Portugal and Spain with smaller quantities from Morocco, Angola and Japan. Between 1960 and 1966 their trend was downwards but they now appear to have levelled out at a quantity of between 3 000 tons and 4 000 tons a year. Imports in 1970 are thought to have been near the bottom end of this range.

Market prospects

There are believed to be good market prospects in Italy for exporters of raw tuna. The main reason for this optimistic forecast is that new suppliers are required to replace Japan. In December 1970, the price of dressed yellowfin in Italy reached nearly $1 000 a ton (cif Italy). The likely long term price is thought to be nearer $800. The species required are those involved in the prepared light meat trade since Italy is believed to can only small quantities of albacore.

The trend of canned imports suggests that there is no room for new suppliers of tuna in this form.

Prospective importers of raw tuna should note that in December* 1971 Italy established a statutory level on the mercury content of imported fish and fish products of 0.7 mg/kg (ppm). Detailed methods and certificates of analysis are also prescribed.

2. France

Like Italy, France also imports both raw and canned tuna but in her case canned imports are the more important.

**Official Gazette of the Italian Republic*, No. 328, 28th December 1971.

Since 1964 raw imports, which are thought to be mainly of albacore, have fluctuated irregularly between 1 000 tons and 3 000 tons. In 1969 2 600 tons were imported mostly from Japan which is usually the main supplier.

The normal amount of French canned imports is between 8 000 tons and 11 000 tons. In 1969 they were 9 7000 tons. Most of these imports (9 000 tons in 1969) come from the former French African countries of Senegal and the Ivory Coast, where French boats are based.

In the past much of this trade was regulated by a body called the Interstate Committee for Tuna of which France and her former African territories were members. This body met twice a year and, amongst other matters, set prices for raw and canned tuna and allocated the quota obtained in the French market between individual canners and countries. This quota regulated the import of duty-free canned imports between France and the African countries involved.

The system outline above is likely to be affected by EEC regulations now being evolved. In particular, it is likely that the fixing of the price of tuna for canning will have to end.

Apart from the Senegal and the Ivory Coast, France imports smaller quantities of canned tuna from Morocco and Yugoslavia.

Market prospects

There was no upward trend discernible in either imports of raw or of canned tuna in the years 1960 to 1969. However, there is some expectation of an expansion of demand for canned tuna particularly albacore, but it is likely that this will be met mostly by existing suppliers. Consequently, prospects for a new supplier are only fair.

3. West Germany

West Germany is only important as an importer of canned tuna and in 1969 her imports of 14 800 tons (£5.1 million) were second only to those of the USA.

Although West Germany only began recording her imports in 1966 there is some evidence from the records of countries exporting to her that imports had been rising before then. Since 1966 increased imports have been recorded in 1968 and 1969. Imports are believed to have risen further in 1970 but to only a very limited extent.

Almost 90 per cent of German imports come from Japan. They include both bonito and other tunas and are packed in oil rather than in brine. West Germany also imports a number of fancy packs such as tuna in jelly and tuna in tomato paste. A much smaller quantity of tuna is imported from Yugoslavia (500 tons in 1969) and a number of other European countries such as Spain and Portugal. Also in 1969 300 tons of imports were recorded from Cuba.

Market prospects

In 1967, a Japanese trade organisation investigating the German market reported that sales in the next year to year and a half could be increased by 40 per cent. This forecast was largely justified and it seems probable that imports will continue to rise in the next five years though probably not so fast. Market prospects, therefore, are quite good. However, the Japanese are well entrenched in the

market with a highly regarded product; so that it may prove difficult for other existing suppliers or new ones to increase their sales to any great extent.

Prospective importers into this market should note that the statutory level for mercury in tuna is 1.0 ppm.

4. Belgium/Luxembourg

Like West Germany, Belgium imports only canned tuna. Her imports are normally between 3 000 tons and 3 500 tons. There is no pronounced trend and imports in 1970 are believed to have maintained the pattern of the previous years. The types of canned tuna concerned are very similar to those imported into West Germany as indeed are the countries supplying them – Japan and, to a lesser extent, Yugoslavia. The only significant difference in the source of imports of the two countries is that Yugoslavia is more important to Belgium than she is to West Germany.

Market prospects

There is no evidence that demand will expand in the foreseeable future and therefore prospects for a new supplier are not good since she would have to compete with those already established in the market.

5. The Netherlands

The Netherlands usually imports between 700 tons and 1,000 tons of canned tuna. Just over 50 per cent of her supplies come from Japan, the remainder from about ten other countries led by the USA and Cuba.

Market Prospects

The market situation is similar to that in Belgium except that as the Netherlands is a smaller market, there is less scope for any prospective exporters hoping to compete with those already existing.

The tolerance level of mercury in the Netherlands is the same as that in West Germany ie 1.0 ppm.

Tariffs (full details are given in Appendix D)

Since 1 July 1968 when the final stage in the harmonisation of common tariffs was reached there have been no Inter-Community duties but a Common External Tariff (CET) applying to all imports from countries outside the Community.

The bulk of raw tuna entering the EEC is admitted duty free under a provision that within the limits of an annual quota (61 000 *metric* tons in 1969) raw tuna intended for canning does not bear any tariff. Raw tuna imported in excess of this quota bears a duty of 22.6 per cent and deep-frozen fillets one of 18 per cent.

For canned tuna there is a distinction made between bonito and frigate mackerel, and all other tunas. The former are subject to a duty of 25 per cent the latter to one of 24 per cent.

Certain of these duties were reduced on 1 January 1972 and where applicable these are given in the Appendix.

Apart from the above tariffs which apply to the EEC as a whole there are certain additional taxes relevant in particular countries. The most common of these is the added value tax and it applies in Belgium, France and the Netherlands. In West Germany it is replaced by an import turnover tax and in Italy by a general turnover tax. As well as these, there are additional taxes on imports of tuna in oil existing in France and Italy. In France, there is also a parofiscal tax and in Italy health and salt taxes.

Japan

In 1969 Japan imported 34 600 tons (£5.9 million) of raw tuna. This made her the third largest world (raw) importer after the USA and Italy.

The increase in Japan's imports has been very rapid. In 1965 only 2 500 tons were imported. By 1967 this amount had risen to 15 900 tons and by 1968 to 28 500 tons. The main reason for this trend was probably the big fall in the domestic catch of tuna during this period. Fish are a major part of the diet in Japan* and tuna is one of the main fish consumed. Consequently, it is likely that a decline in its catch from 647 000 tons in 1966 to only 534 000 tons in 1969 raised prices and encouraged imports. Apart from being used in the home market it is likely that some part of the increase in imports was also canned for re-export since although the export of raw tuna fell after 1966 that of canned tuna was not only maintained but actually rose (see Part VII).

Since 1968 the growth in the quantity of imports has slackened, although their value has continued to rise. In 1969 imports were 34 600 tons (£5.9 million) and first estimates for 1970 indicate that imports were at roughly the same level but at a much higher value of £7.3 million.

Japanese imports come mainly from three countries – Taiwan, South Korea and the Ryukyu Islands. Smaller quantities are recorded as coming from Malaysia, the New Hebrides and the Philippines. Table 11 shows the quantity of imports from each of these countries in 1969.

Table 11

Japan: imports of fresh, chilled and frozen tuna in 1969

	Thousand tons	Thousand £s
Taiwan	11.8	1 770
Ryukyu Islands	8.7	2 002
South Korea	7.8	1 122
New Hebrides	1.7	221
Malaysia	1.4	205
Other countries	3.2	559
Totals	34.6	5 879

Source: *Trade of Japan* Japan Tariff Association

Imports are believed to include all the major species of tuna with yellowfin being the most important of those separately distinguished.

Market prospects

The demand for tuna on the Japanese domestic market is reported to be rising but so (see Part IX) are prices. In addition, there has been pressure from the

*About 60 per cent of the Japanese population's supply of protein is estimated to come from fish ('Japan – the fish industry in 1970' *Fishing News International*, 1970, **9** (5), 21.)

Federation of Japan Tuna Fisheries (an important co-operative association) to control imports by such measures as prohibiting foreign vessels from landing fish in domestic ports. To date, this pressure has not been successful, but may be so in future. There are also plans to treble the Japanese catch of skipjack and the success of this venture will have an important impact on future market prospects.

It is difficult, therefore, to assess the market prospects in the longer term. However, in the immediate future, it seems likely that, although prospects on the domestic market are uncertain, raw tuna will still be required for the canned export trade. Suppliers who can offer their product at a competitive price should therefore have little difficulty in finding buyers.

Tariffs

The tariff rate on fresh, chilled or frozen tuna (including bonito) imported into Japan is ten per cent, ad valorem, based on CIF value. Imports emanating from a country to which General Agreement on Tariff and Trade (GATT) reductions apply bear a reduced duty of six per cent during 1971, and five per cent in 1972, (the latest year for which information is available).

The statutory level for mercury in Japan is up to 1.0 ppm.

The United Kingdom

The United Kingdom is a small but growing market for canned tuna and in 1970 (Table A18) imports were a little over 5 000 tons (£2.3 million). Since 1965 these have grown at a steady rate of about 500 tons a year. Skipjack and bonito are the species of tuna forming most of the imported packs, together with, until recently, smaller quantities of bigeye.

Japan supplies 70 per cent to 80 per cent of the United Kingdom's imports. The remainder comes from a large number of countries led by Peru, Malaysia and Yugoslavia. Until 1966 more than half of the United Kingdom's imports came from Peru. Now less than 12 per cent comes from there. Other countries supplying amounts of up to 200 tons are the USSR, Spain, the USA and, sometimes, Canada.

The chain of distribution is along the line: broker, distributor, wholesaler and retailer. The price at which imports are bought is negotiated by distributors either with the broker or directly with the supplier. The main distributor is John West Foods Ltd.

This firm is one of those that deals directly with suppliers. Other firms selling canned tuna are John Martin of London Ltd ('Carnation' brand) and Princes Food Ltd.

No tuna is canned in the United Kingdom; so that the import figures given in Table A13 are a fair indication of the trend in home sales. The rate of increase reflected was achieved despite tuna prices rising at a faster rate than those in other sections of the market for fish. Three main reasons for this have been given by the trade: despite its rising price, tuna remained at the cheaper end of the market; tuna was advertised as a product by itself rather than with other fish and; people going on Continental holidays have returned with a greater inclination to try new dishes.

The discovery of mercury in canned tuna in the United States in December 1970 had an initially disturbing affect on this market and some retailers removed the product from their shelves for a time. This is reflected in the 1971 trade figures and the latest statistics available show that, up to October, imports were at little

more than half their quantity of the previous year. In January 1971, a system of monitoring foodstuffs, including fish, for the presence of mercury and other heavy metals was announced by the Minister of Agriculture. The findings of this inquiry are set out briefly in Appendix D. The conclusion reached by the expert committees to which they were submitted was that there was no evidence of harm to health from present levels of mercury in food, including canned tuna, for the average consumer. The current market situation is believed to be that in those supermarket chains which did not remove tins from their shelves, sales have returned to normal. In cases where sales are down this is thought to be more a reflection of the absence of the product for a period rather than of any reluctance to buy it on the part of consumers.

Market prospects

Unless the continued monitoring of foodstuffs produces unexpectedly adverse results demand for canned tuna in the United Kingdom is likely to rise. The rate at which this takes place will probably be primarily determined in the short run by the availability of Japanese canned skipjack. In January 1972 this was scarce and prices were high. (Top grade tuna was being sold to wholesalers at between £5.50 and £5.75 for a case of 7 oz 48 halves). If the present rise in prices can be kept under control trade opinion expects sales to go up at least until 1975 and the ratio of sales of tuna to salmon, one of its closest competitors, is expected to fall from its present 1:10 to an eventual 1:6 (although not necessarily by 1975). It is also thought likely that as the price of tuna rises tuna based products will become more popular and sales of the 'meat' itself level off. The rate at which this occurs and also the long term market prospects will depend more on the world supply situation than on any factor internal to the United Kingdom.

Buyers in this market will only take top grade canned tuna. If this can be supplied at a price which is competitive with that of Japan then the prospects for new suppliers are good. With regard to the species of tuna required, it is probable that only the smaller varieties – skipjack and bonito, will be accepted since the larger ones are more likely to have high levels of mercurcy in them*.

Tariffs

Canned tuna is liable to an ad valorem duty of eight per cent, but can be imported duty free from EFTA countries and the Commonwealth.

Quality and labelling requirements

There are no specific quality regulations laid down for importing canned tuna but any prospective entrant to the market should note the general provisions of the Food and Drugs Act 1955 and the Labelling of Food Regulations 1970**. The latter are not at present mandatory but becomes so on 1st January 1973. The relevant details of the Food and Drugs Act are contained in Sections 1, 2 and 8. They are:

Section 1 – makes it illegal to sell food which is injurious to health.

Section 2 – makes it illegal to sell food which is not of the nature, substance or quality demanded.

Section 8 – makes it illegal to sell food which is unfit for human consumption.

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* This factor has meant the virtual ending in 1971 of imports of canned bigeye from Malaysia.

** A fuller description of these Regulations is contained in Appendix F.

This Act covers only England and Wales but similar legislation exists in Scotland and Northern Ireland. The Labelling of Food Regulations stipulate the labels under which tuna may be described for sales purposes:

	Species		Label required
(a)	All species of *Thunnus* except *Thunnus alalunga* (Bonaterre) All species of *Neothunnus*	–	Tuna or Tunny
(b)	*Thunnus alalunga* (Bonaterre)	–	Albacore Tuna
(c)	All species of *Sarda*	–	Bonito Tuna
(d)	All species of *Euthynnus Katsowonus pelamis* (L)	–	Skipjack Tuna

Canada

Canada imports both raw and canned tuna. Raw tuna is imported mainly for canning. The quantity of imports in a particular year depends primarily on the size of the domestic tuna catch. It has varied between a little over a thousand tons (in 1963) and 5 000 tons (in 1967). Recently the home catch has increased and imports in 1969 were low. In 1970 they are thought to have been neglible.

The main species of raw tuna imported is albacore. Normally most of this comes from Japan.

Canned tuna

Imports of tuna in this form were 3 400 tons in 1969 (£1.1 million). Their quantity was about the same as that during the years 1965 to 1968 but higher than in the first half of the decade. It is likely that, in the same way as raw imports, their quantity is influenced by the amount of the home catch available. Imports in 1970 are thought to have been at a record level of 5 300 tons.

More than 75 per cent of Canada's canned imports come from Japan, the remainder from Peru, Cuba, the USA and Malaysia.

Market prospects

Little is known about the trend of consumption in this market. It is unlikely, from past experience, that there exists a regular market for raw tuna but, if the 1970 figure for canned imports is correct, and the trend is maintained there could be some scope for supplying the product in this form.

The tolerance level for the mercury content of fish in this market is 0.5 ppm.

Tariffs

Raw tuna intended for processing in Canadian canneries is admitted duty free. Other raw tuna bears a tariff of 1 ct a lb (for exceptions see Appendix D).

For canned tuna there is a distinction between that imported in oil which bears a duty of 35 per cent and that otherwise preserved, which is subject to a duty of 30 per cent (again there are exceptions).

Switzerland

Switzerland imports tuna only in its canned form. The size of the market is difficult to assess, since the country does not record tuna imports as a separate

trade category. The import figures shown in Table A13 have therefore had to be imputed from the export statistics of other countries. Their breakdown for 1969 is shown in Table 12.

Table 12

Switzerland: imports of canned tuna in 1969

	Thousand tons	Thousand £s
Japan	2.2	981
Spain	1.1	591
France	0.2	176
Other countries	0.1	42
Totals	3.6	1,790

Source: *Trade returns of exporting countries*

The figure for total imports of 3 600 tons given above is known to be slightly understated since it excludes imports from Peru (not available) which in the three previous years were between 600 tons and 700 tons.

Although Switzerland, like many other countries obtains much of her tuna from Japan she also imports it from a number of other areas. Apart from Peru these are all in Europe. Spain is the most important; she is followed by France.

Market prospects

On the evidence of imputed figures, imports rose in the three years 1967, 1968 and 1969. It is therefore possible that prospects are good although since the figures are only estimates this statement should be treated with caution.

Tariffs

The duty on canned tuna weighing over 3 Kgs is 2.00 Swiss francs per 100 Kgs. This rises to 20 Swiss francs (per 100 kg) if the weight is 3 kg or less.

Imports from countries belonging to the European Free Trade Association are exempt from these duties. Details of the other taxes to which canned tuna is liable are given in Appendix D.

Spain

Spain imports a small quantity of raw tuna. In recent years her imports have been between 3 000 tons and 4 000 tons. Tuna is sold in Spain fresh, frozen and canned. It is not known whether raw imports are intended mainly for sale in their frozen form or used for canning but the latter is the more likely. Since Spain is an exporter of canned tuna it is probable that some of her raw imports are re-exported in this form.

Spanish imports come mainly from Japan. The species of tuna obtained from there are skipjack, yellowfin and occasionally, albacore. Some tuna is also imported from Peru and, in 1969, from the USA.

Market prospects

There is no noticeable upward trend in imports; so that unless there is an appreciable change in this situation, the outlook is not very good. It is possible however

that prospective suppliers may be able to take some of the market share from Japan since her exports to Spain in the years before 1969 had been falling.

Tariffs

The normal rate of duty on the import of raw tuna is an ad valorem one of 6 per cent. Temporary reductions are made in some years in order to encourage the import of fish at particular periods, eg in 1971 there was a 100 per cent reduction until 30th April. Imports from EEC countries are admitted at a slightly lower rate of duty. At the moment (January 1972) this duty is only 10 per cent lower than that borne by imports from other countries. This reduction increases in steps of 10 per cent to 60 per cent by 1977 and may have an influence in the direction of future trade.

Yugoslavia

Yugoslavia is another country that imports a small amount of raw tuna. The quantity of her raw imports to 1964 has been imputed and it is believed that during this period they were appreciably higher than at present. Tuna is imported partly for the home market and partly for re-export in canned form.

The present level of Yugoslav imports is just over 3 000 tons. Most of these come from the USA and Turkey, a smaller but regular amount comes from Italy.

Market prospects

The market situation is very similar to that prevailing in Spain. There is unlikely to be an expansion of imports in the near future so that any new entrants would have to obtain a share of the market from Turkey or the USA.

Tariffs

Raw tuna is admitted duty free.

Other importing countries

Raw tuna

Most of the other countries listed in Table A12 as importing raw tuna are trans-shipment points. It is likely that a small proportion of the 'imports' concerned are destined for the domestic markets of the countries concerned but this trade is not recorded separately. It is, therefore, not possible to say whether these areas are of any significance as markets in their own right.

West Malaysia is the most important of these areas, with imports of nearly 8 000 tons in 1969. It is known that some of the raw tuna is canned in the country and then exported. Other areas that are important as bases for trans-shipment are American Samoa, Fiji, Ghana and the New Hebrides. It should be stressed that the imputed amounts given in the Table are only very rough estimates of the amount of trade involved.

The imports of the remaining three countries in Table A12 have all been imputed. Greece is the most important of these. She is known to have been importing an increasing quantity of bonito from Turkey until 1966. After 1966 Turkey ceased to record the destinations of her tuna exports.

Imports into Czechoslovakia during the period 1960 to 1966 varied between 1 000 tons and 3 400 tons. Their drop in 1966 reflected lower imports from Japan. This drop was continued in subsequent years but it is not known to what extent it was made good by increased imports from other sources.

Between 1966 and 1969 Argentina imported a small quantity of bonito tuna from Peru. From a level of 2 100 tons in 1966 the amount fell steadily to only 300 tons in 1969.

Canned tuna

(a) Europe

Apart from those European countries already mentioned a number of others also import canned tuna: Austria and Sweden are the most notable of these, but there are many others such as Malta, Denmark and Greece.

In 1969, Austria imported 900 tons of canned tuna valued at £138 000. This figure is taken from Japanese trade statistics and excludes possible imports from other sources of which we are not aware. The trend in Austrian imports has been upwards since 1964 and between 1968 and 1969 their quantity more than doubled. It is probable therefore that this market offers good prospects though, on account of its size, these must be of a limited nature.

Imports of canned tuna by Sweden are about 700 tons a year. Their trend is slowly upwards. Nearly 50 per cent of Swedish imports are supplied by Japan most of the remainder coming from Peru and the United States.

(b) Middle East

Small quantities of canned tuna are known to be imported by Kuwait, the Lebanon, Saudi Arabia and South Yemen. The amounts of these have been imputed so that they can only be regarded as a rough approximation. However, they are believed to be considerably less than a thousand tons for each country. The Lebanon is the most important individual market taking over 500 tons of canned tuna each year. She is followed by Kuwait. Imports came from Japan and Peru.

(c) Rest of the world

In South America canned tuna is imported by Brazil and, in some years, also by Uruguay and Venezuela. Brazilian imports in 1969 were 500 tons and were obtained from Ecuador, Peru and Chile.

Elsewhere, the Ryukyu Islands import canned tuna from Japan. The quantity has been increasing and in 1969 was nearly 1 200 tons. In Africa, Mozambique obtains her supplies almost entirely from Angola.

Part IX

Prices

To a certain extent the price of tuna in a particular market depends on the local conditions of supply and demand. However, where there is an important trade in the fish, prices are often fixed with reference to those prevailing internationally. Apart from the world tuna catch, the largest single influence on these prices is the state of the market in the USA and Tables A19 to A22 give prices there between 1965 and 1971. It should be noted that they are quoted in dollars per *short* ton.

It will be seen that for both raw and canned tuna there are a number of prices varying with such factors as the species of tuna concerned, whether or not it has been imported and, in respect of canned tuna, the type and size of pack.

Table A19 gives the prices of tuna landed by American vessels. These prices are generally fixed at an auction, although a minority of sales are made under contract. Most sales are made by the American Tuna Sales Association to the owners of canneries in California. The marketing method is known as 'the empty boat system', whereby the terms of sale are agreed upon before a boat sails thus enabling a quicker unloading on its return. It also means that a boat spends only a minimum time idle in port. The onus of unloading is with the purchaser, who must pay a fine if this is not done within 10 days.

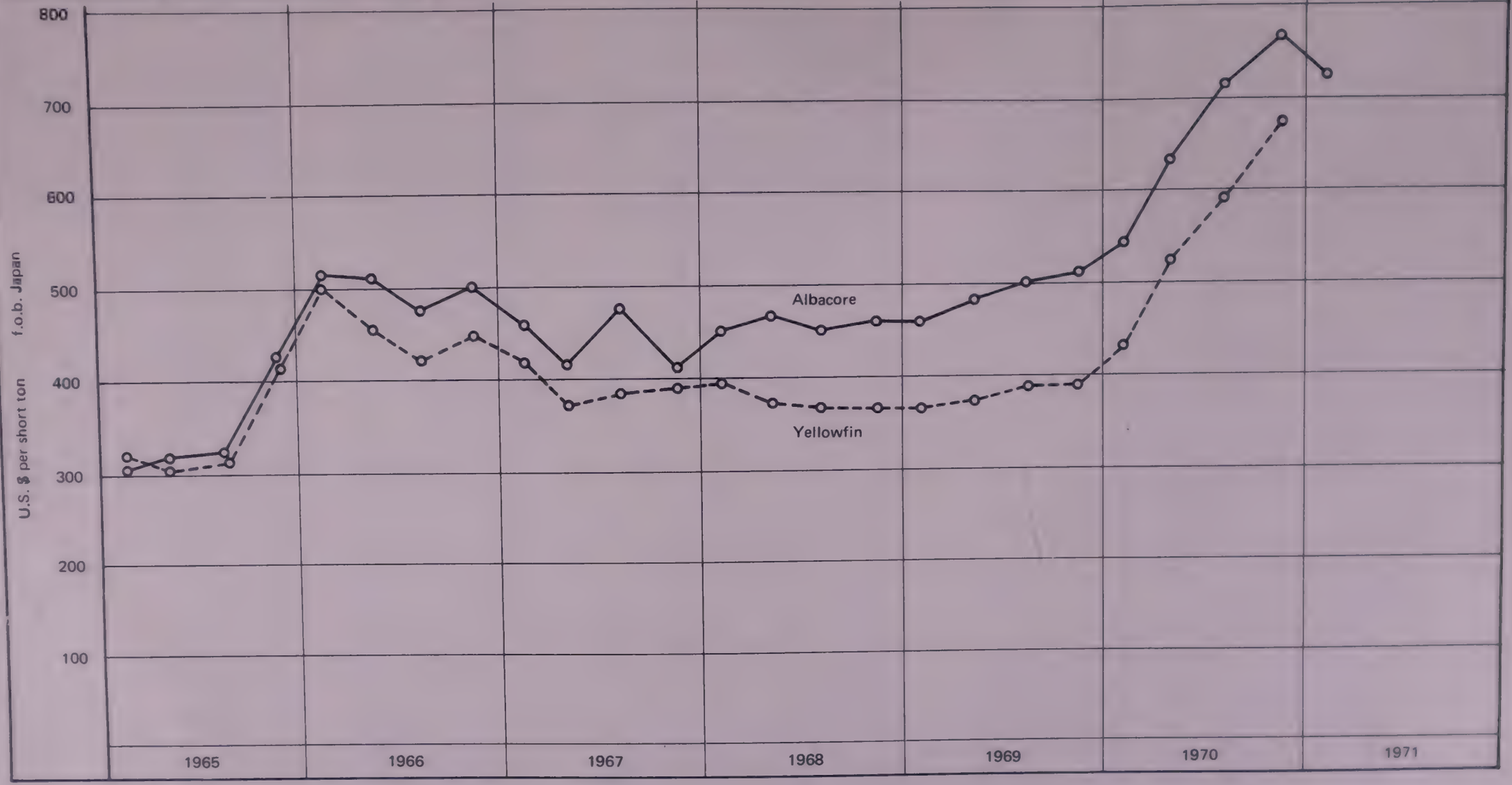
By custom and practice the price of yellowfin, skipjack and bluefin have become related. If the price of yellowfin is $ X a ton, then bluefin sells for X less $20 a ton and skipjack X less $50 a ton. The operation of this system may be seen in the table. For example, in the fourth quarter of 1970, the average price of yellowfin was $387 a ton, bluefin $367 a ton and skipjack $337 a ton. The price of the more valuable albacore would seem to be exempt from this system, as the premium it has fetched over yellowfin has varied considerably from $27 a ton in the fourth quarter of 1965 to $163 a ton at the end of 1970. In this way the order of popularity of the main tuna species sold on the American market – albacore, yellowfin, bluefin, skipjack – is reflected in their respective prices. There is no governmental control of these, either by way of stabilising schemes or subsidies. The American Government can, however, issue cease and desist orders to any organisation that tries to enhance prices unduly. The terms of sale fixed for tuna in California also apply to those landed in the overseas territories, such as US Samoa, where some canners have bases.

The prices of all tuna species were much higher in 1970 than in 1965. Until 1968 there was evidence of a seasonal variation in the prices of yellowfin, bluefin and skipjack with those in the second and third quarters of each year being lower than in the first and the fourth. The sharp, temporary jump in the price of yellowfin at the beginning of 1966 reflected the introduction of measures regulating the catch.

The price of albacore has risen in a series of 'jumps'. Since 1968 these jumps have occurred between one year and the next rather than within the year itself.

Diagram 8

Tuna : fresh, chilled or frozen : prices of imports into the U.S.A.



Source : data of Table A20

The biggest increase of $100 occurred between 1969 and 1970 and the latest available price of this species (Dec. 1970) is $550 per short ton.

The prices of the light meat species – yellowfin, bluefin and skipjack – have risen more smoothly. As explained above these rises have been led by yellowfin, and since the last quarter of 1967, they have been almost continuous. It was particularly marked between the end of 1969 and the beginning of 1971. Details of prices in the second quarter of 1971 suggest that the rate of increase slowed down.

Table A20 gives the prices of raw tuna imported from Japan. Their trend is illustrated in Diagram 8. The prices quoted have moved in the same direction as those of the competing American product, but at a higher level. They also show less seasonal variation. In 1970 prices rose steeply. The main reasons for this were a shortage of supply, rising home demand and a continued firm market in the USA. Another feature of the prices shown is the increasing gap between the prices of yellowfin and albacore. In the first quarter of 1965 this was $8. In the same period of 1967 it was $44 and by 1970 it was $104. The prices of Japanese tuna are fixed by agreement but the exact nature of this is not known. In January 1971 the price of albacore from Japan fell to $722 from $768 in the fourth quarter of 1970. The reason for this fall was probably the detention of some exports to the USA following the dockside testing for mercury. It is unlikely however that this fall is more than a temporary divergence from the long term trend.

Most tuna sales in Japan are made initially by the fisherman to a co-operative and it is estimated* that 90 per cent of fishermen belong to one of these. The co-operatives in their turn act as wholesalers and resell the fish landed by auction, tender or direct sale to middlemen, retailers and processors. Fishermen are not obliged to sell to the co-operative but can select any wholesaler in a market of their own choosing. Except in the big fishing ports, however, there usually exists only one market at each port and almost all markets are established by co-operatives acting as receiving agencies. A recent development which may affect future tuna prices in Japan is the decision of the Federation of Japan Tuna Fisheries Co-operative Association to bypass further middlemen and sell direct to retailers with the savings being passed on in the form of higher prices to the producers and lower prices to the retailers. In the beginning it is expected that sales will be mostly to volume consumers such as supermarkets and hotels. Initially, this is to be a three year experiment.

Table A21 and Diagram 9 show the movement in the prices of canned imported tuna. The price of white solid pack imports showed only minor variation between 1965 and the end of 1968 within the limits $12.75 and $14.38 a case. The higher price prevailed at the end of 1966 and the beginning of 1967. A similar situation existed for the light solid pack, but in this instance the price rise in 1966 was more marked. Since the end of 1968 the price of both packs has risen appreciably and, in the second quarter of 1971, that of brine reached a record $19.22 a case. In the same way as raw imports, price rises were particularly marked in 1970.

The trend in the retail price of canned tuna is shown in Table A22. The main influence on this is the cost of raw tuna since this is the main expense involved in the manufacturing process. In 1965, prices were stable. They then rose sharply until the third quarter of 1966 and then fell again until the first quarter of 1968. Since that time prices have risen continuously, particularly in 1970.

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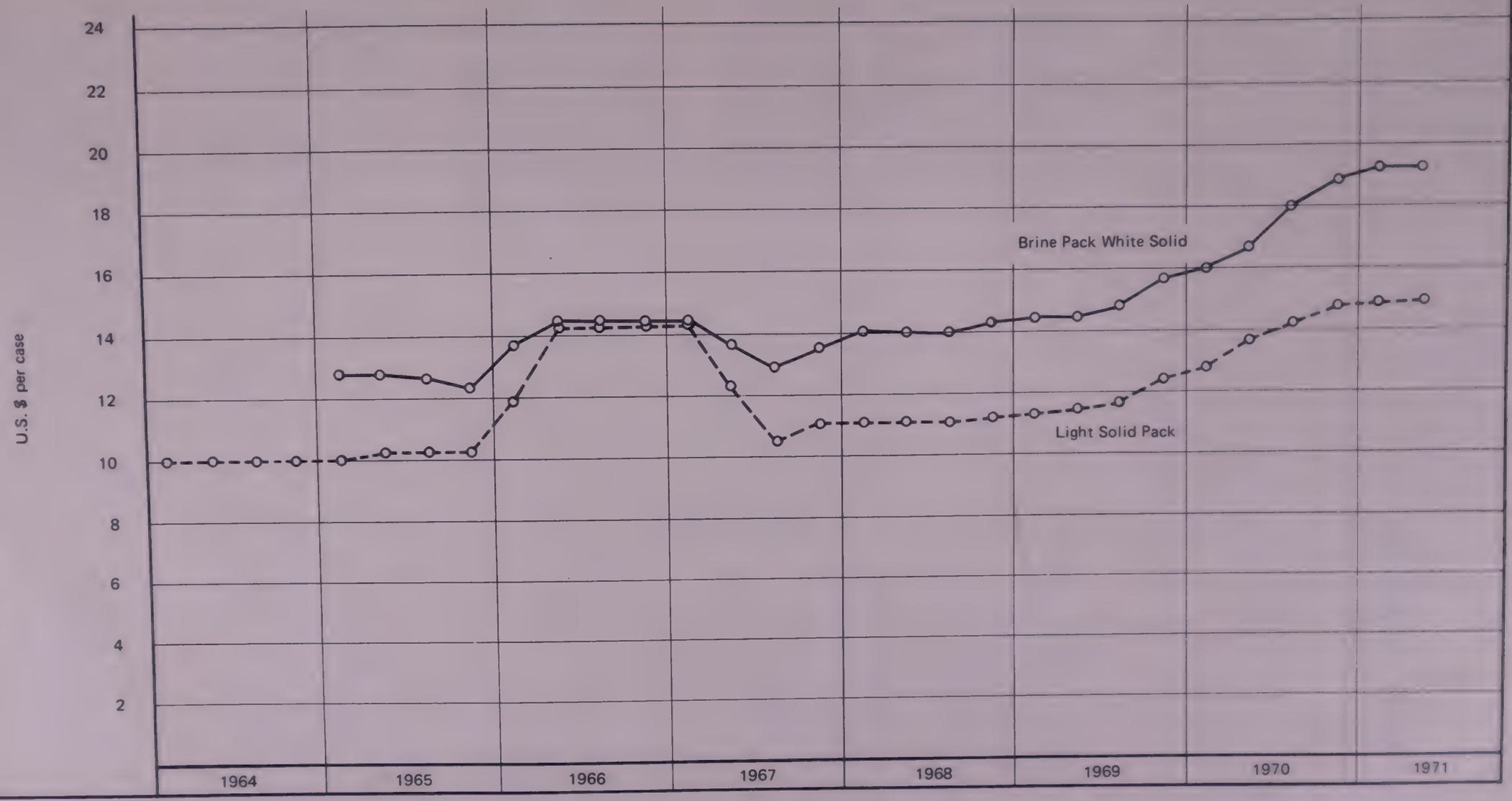
* *Price systems in the fishing industries*, OECD, Paris 1966, p.114.

Diagram 9

Tuna : canned : prices of imports into the U.S.A.



Source : data of Table A21

Part X

Future outlook

The main factor influencing the market for tuna in the future will be resource availability. Most species have reached the point at which increased catches will mean depletion of stock. Consequently, if this is not to occur, further increases in demand will have to be met by the smaller tuna, mainly skipjack. Whether or not demand will continue to rise is difficult to assess and will depend upon the price elasticities in each market*.

Until now in the USA, the principal market for tuna, demand has continued to go up despite price increases. This has probably been due to the fact that the effect of these have been outweighed by rising incomes. Although there is a limit to which price increases can be offset in this way it is not thought that this limit has yet been reached. Since there is scope for an increased supply of tuna through higher imports of skipjack, it is likely that demand will continue to rise. It is difficult to say how long this trend will continue as it depends to a large extent on how successful are Japan's plans for increasing her skipjack catch and whether the fish caught become available for the world market.

On the question of mercury it may be noted that little evidence of consumer resistance to tuna has been found now that the events of December 1970 have been placed in perspective. Such influence as mercury has on the market is likely to be felt on the supply side. Some governments have imposed tolerance levels on the mercury content of imported fish. This imposition may mean reduced supplies of some species and act as a factor inflating prices by imposing a limit on supply. It is too early to attempt a complete assessment on whether mercury will affect the demand for particular tuna species to any appreciable extent but present indications are that this is unlikely.

The future outlook in markets other than the USA will depend to a considerable extent on whether the species of tuna demanded is the same as that wanted in the USA. Where demand is the same the competition to obtain supplies is likely to push up prices and act as a severe impediment to expansion of the market. It is probable that in those markets where the demand for tuna is highly price elastic it will become a speciality luxury food rather than an established competitor with other canned fish. Another likely tendency in these markets is fragmentation of the product with a variety of tuna-based food appearing eg pastes, mousses and jellies.

Any factors operating on the supply of tuna are likely to become increasingly important. For example, the success or otherwise of the efforts of international commissions to regulate catches. Fishing controls are likely to become more detailed as regards the quantity of tuna caught, its species, the techniques used and the area and period of fishing. If they are enforced they will affect the catches of tuna landing countries and thus possibly their demand for imports.

* An analysis of the possible course of future demand is given in E. W. Bell 'The future role of investment and technological change in the world tuna fisheries'[5].

Other factors which could operate on the supply side of the market are a reappraisal of the world stock of tuna or advances in their artificial culture. The artificial rearing of tuna is being attempted in the USA and Japan but is not likely to be a commercially viable proposition in the forseeable future. Advances in fishing techniques although having an impact on the profitability of catching fish will not necessarily increase the total quantity landed. Their importance lies in their acting as a counterbalance to declining catch rates now that most tuna species have become a relatively scarce resource.

In conclusion it may be stated that the growth of the market for tuna will become increasingly limited by its scarcity. A greater proportion of the total demand will be met by skipjack.

The best market prospects are likely to be in the USA. Elsewhere particularly in the smaller markets tuna will gradually become a luxury product.

References

1. NAKAMURA, H. 1969. *Tuna, distribution and migration.* London: Fishing News (Books) Ltd, 76pp.
2. DEWBERRY, E. B. 1969. Tuna canning in the United States. *Food Trade Review,* **39** (11), 37–42.
3. BROADHEAD, G. C. 1971. International trade – tuna. *FAO, UNDP, Indian Ocean Fishery Commission Paper*, No. 10 FC/DEV/71/14.
4. FAO 1969. Report of the third session of FAO experts panel for the facilitation of tuna research. *FAO Fisheries Report* No. 80.
5. BELL, F. W. 1969. The future role of investment and technological change in the world tuna fisheries. *Proceedings of the FAO International Conference on Investment in Fisheries.* Rome: FAO, Paper No. FE: IFI/69/Bp/44.
6. US DEPT OF HEALTH, EDUCATION AND WELFARE 1967. *Requirements of the United States Food, Drug and Cosmetic Act.*
7. US DEPT OF HEALTH, EDUCATION AND WELFARE 1969. *Code of Federal Regulations Title 21.*

Bibliography

ALI, L. 1968. World raw and canned tuna situation. *Commercial Fisheries Review,* **30** (2), 24–31.

ANON. 1968. Canned fish, special report No. 2. *Retail Business,* No. 124.

ANON. 1970. Japan: the fish industry in 1970. *Fishing News International,* **9** (5), 20–32.

ANON. 1971. Taiwan's tuna fishery. *Commercial Fisheries Review,* **33** (3), 55.

BELL, F. W. 1969. Forecasting world demand for tuna to the year 1990. *Commercial Fisheries Review,* **31** (12), 24–31.

BORGSTROM, G. 1964. *Japan's world success in fishing.* London: Fishing News (Books) Ltd, 312 pp.

FAO 1968. Report of the meeting of a group of experts on tuna stock assessment. *FAO Fisheries Report,* No. 61.

FAO 1970. Report of the first meeting of the International Commission for the Conservation of Atlantic tuna. *FAO Fisheries Report,* No. 84.

FRASER-BRUNNER, A. 1950. Fish of the family Scombridae. *Annals and Magazine of Natural History,* Series 12, **3,** 131–163. British Museum (Natural History), London.

KASK, J. L. 1968. Tuna. *National Fisherman* (Supplement) **48** (13), 131–141.

KASK, J. L. 1969. Tuna Commission Reports. *National Fisherman* (Supplement) **49** (13), 75–85.

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD 1965. Tuna fishing. *Ministry of Agriculture, Fisheries and Food Laboratory Leaflet (New Series),* No. 14.

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD 1971. *Survey of mercury in food.* London: HMSO.

OECD 1965. *Financial support to the fishing industry.* Paris: OECD.

OECD 1966. *Multilingual dictionary of fish and fish products.* Paris: OECD.

OECD 1966. *Price systems in the fishing industry.* Paris: OECD.

OECD 1970. *Fishery policies and economics 1957–1966.* Paris: OECD.

OECD 1971. *Review of fisheries in OECD member countries.* Paris: OECD.

OMMANNEY, F. D. 1965. *A draught of fishes.* London: Longman, 254 pp.

SABCOCK, D. K. 1970. The French tuna industry. *Commercial Fisheries Review,* **32** (3), 57–60.

UK STATUTORY INSTRUMENT 1970. *The labelling of food regulations 1970.* UK Statutory Instrument No. 400.

US DEPT OF THE INTERIOR 1970. *Fisheries of the United States: 1969.* Washington DC: US Dept of the Interior.

YANG, C.C. 1964. Tuna industry of Taiwan. *Industry of Free China,* **21** (9), 2–22.

The following periodicals have also been used in the preparation of this report:–

1. *Australian Fisheries,* Fisheries Division, Department of Primary Industry, Australia.
2. *Commercial Fisheries Review,* Department of Commerce, USA.
3. *Fishing News International,* Arthur J. Heighway Publications, UK.
4. *Food Fish Products, Situation and Outlook,* Department of the Interior, USA.
5. *Food Fish, Fresh and Frozen Products, Situation and Outlook,* Department of Commerce, USA.
6. *Food Fish, Canned Products, Situation and Outlook,* Department of Commerce, USA.
7. *World Fishing,* Commercial Exhibitions and Publications Ltd, UK.

Appendix A: Tables

Table A1

Tuna: world catches and landings

Thousand tons

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
World Total	1 043.2	1 181.0	1 190.9	1 230.2	1 200.7	1 200.7	1 328.7	1 392.6	1 410.4	1 466.5*
of which:										
Australia	3.1	4.3	4.7	4.9	8.0	7.1	8.0	5.6	6.7	8.8
Ceylon	12.7	17.9	19.2	31.8	22.3	25.2	29.5	42.1	55.6	...
Chile	2.4	3.6	2.4	2.6	6.1	11.1	13.2	8.9	4.5	5.8
Ecuador	18.8	11.5	11.2	13.3	9.6	14.6	11.8	19.8	17.9	19.8
France	31.3	35.4	40.4	45.3	48.2	41.6	50.0	50.6	64.6	48.0
Ghana	1.2	3.5	5.6	6.9	5.5	10.8	9.7	13.9	28.5	32.8
Japan	476.2	584.3	617.4	590.8	597.4	587.7	647.0	569.4	535.7	533.5
Mexico	3.8	3.3	4.3	4.4	4.5	4.2	5.2	8.8	7.5	9.2
Morocco	8.7	8.0	16.8	9.6	8.7	9.4	7.0	10.7	12.7	13.5
Pakistan	8.5	3.5	5.8	8.8	9.4	9.9	12.0	10.8	11.0	11.0
Peru	122.1	132.1	112.1	116.9	95.6	72.8	82.0	79.5	63.2	74.0
Philippines	18.1	24.9	14.6	17.7	17.9	24.3	32.3	23.2	43.8	31.7
Portugal	9.6	8.8	11.0	13.1	9.2	11.6	6.1	10.9	3.2	7.9
Puerto Rico**	...	...	...	...	...	...	...	43.7	48.0	43.0
Ryukyu Islands	6.3	8.8	11.1	9.8	13.5	14.0	14.5	15.6	18.8	14.4
Senegal	8.4	7.3	10.8	10.8	10.5	5.7	8.6	9.2	12.0	11.3
South Korea	...	...	...	2.7	2.5	8.5	25.1	37.7	42.9	81.5
Spain	40.6	34.7	52.9	51.3	51.9	57.7	69.2	67.0	65.4	61.6
Taiwan	16.9	23.0	31.6	27.8	31.7	26.4	44.1	61.1	100.2	113.1
Turkey	32.0	41.4	3.9	18.9	11.0	20.4	15.9	35.4	21.2	..
USA	146.1	149.4	140.3	145.3	138.0	145.0	128.7	156.1	138.8	151.9
USSR	0.2	0.3	1.0	0.8	1.6	3.5	6.2	8.3	9.8	8.5
Other countries***	76.2	75.0	73.8	96.7	97.6	89.2	102.6	104.3	98.4	185.2

... Not available.

* Total includes unpublished FAO estimates of the catch in countries where information is not yet available

** Part of the USA but stated separately by FAO

*** of these countries the Maldive Islands is the most important

Source: *Yearbooks of Fishery Statistics, FAO*

Table A2

Tuna: world catches and landings of main species*

Thousand tons

	Albacore	Yellowfin	Bluefin	Bigeye	Skipjack	Bonito
1960	166	267	107	74	126	145
1961	154	280	115	114	219	168
1962	179	265	103	127	256	118
1963	202	243	120	131	214	111
1964	180	251	112	117	242	120
1965	201	243	100	115	230	157
1966	193	267	96	114	300	157
1967	220	235	100	118	318	171
1968	187	327	95	118	278	224
1969	209	339	100	130	264	221

* Table excludes catches of frigate mackerel, little tuna and 'various tuna-like scombriforms'

Source: *International Trade Tuna* Indian Ocean Fisheries Commission, FAO, Rome, March 1971

Table A3

Tuna: world canned production

Thousand tons, Net product weight

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
World Total	380.9	403.5	398.6	326.7	330.6	339.5	369.0	388.7	371.0	387.7
of which in:										
Argentina	8.2	3.6	3.2	2.4	1.5	2.3	3.1	2.5	2.8	2.2
Australia	1.3	1.4	1.6	1.9	2.1	2.5	2.2	2.5	3.6	4.0
Canada	...	0.8	1.7	1.0	2.5	1.6	1.6	1.7	1.4	2.0
Ecuador	1.6	3.6	2.7	3.5	3.3	3.2	3.2	4.4	4.4	3.6
France	48.4	46.7	35.8	21.2	22.9	19.1	23.8	25.7	29.5	...
Italy	27.5	31.5	32.7	36.4	29.5	36.4	39.4	41.3	36.4	35.4
Japan	80.6	91.1	95.9	59.2	58.8	51.3	62.5	69.4	56.0	71.3
Mexico	...	...	...	6.0	6.9	6.7	3.0	1.8	1.6	...
Morocco	3.7	...	...	2.5	3.2	3.9	4.9	5.1	...	...
Peru	22.9	23.7	20.0	18.7	...	12.5	10.2	8.0	7.1	5.0
Portugal	5.6	7.4	12.7	5.8	5.6	7.2	4.0	7.6	3.8	6.0
Senegal	...	...	...	...	5.1	5.4	6.2	7.2	7.2	8.4
Spain	18.7	16.4	...	15.6	14.9	20.8	20.1	22.3	...	...
Taiwan	0.7	1.2	1.5	1.9	3.5	2.1	2.5	6.5	4.9	5.5
USA	136.9	143.5	157.7	146.4	156.4	160.4	177.9	176.3	178.6	179.0
Other countries	24.8	32.6	33.1	4.2	14.4	4.1	4.4	6.4	33.7	65.3

... Not available.

Source: *Yearbooks of Fishery Statistics, FAO*

Table A4

Tuna: world exports: fresh, chilled and frozen

		1960–62 Average	1963	1964	1965	1966	1967	1968	1969
Totals[a]	Thousand Tons	190.4	190.9	230.9	221.5	259.3	198.0	222.7	218.5
	Thousand £s	19 274	19 599	25 049	24 346	40 153	27 759	35 169	35 582
of which from:									
Australia*	Thousand Tons	...	0.7	1.5	1.2	2.1	0.4	–	–
	Thousand £s	...	79	163	121	301	60	–	–
Canada[b]	Thousand Tons	–	0.5	1.4	0.7	0.2	1.0	0.8	1.1
	Thousand £s	2	26	89	49	21	108	157	218
Chile[b]	Thousand Tons	...	...	...	0.2	1.9	1.0	–	...
	Thousand £s	...	...	...	16	171	95	–	...
Ecuador	Thousand Tons	3.1[c]	1.4[c]	3.1[c]	5.4[b]	5.0[b]	8.7[b]	6.7[b]	8.5[b]
	Thousand £s	135	81	176	415	514	734	740	1 053
France	Thousand Tons	...	...	0.7	0.7	3.6	2.2	1.9	2.9
	Thousand £s	...	...	84	78	410	335	238	485
Ghana[bd]	Thousand Tons	0.8	–	–	0.6	0.8	1.2	1.8	0.3
	Thousand £s	59	–	2	33	129	140	250	43
Ivory Coast[bd]	Thousand Tons	–	–	5.1	6.3	3.3	2.0	1.7	4.9
	Thousand £s	–	–	560	715	537	347	351	739
Japan	Thousand Tons	140.7	143.8	172.4	162.8	174.8	105.5	105.4	65.4
	Thousand £s	15 508	16 706	20 202	18 648	29 053	16 170	17 107	11 540
Mauritania[bd]	Thousand Tons	–	–	–	0.5	0.7	0.2	2.3	4.4
	Thousand £s	–	–	–	52	148	23	453	256
Mexico	Thousand Tons	1.9	5.3	0.9	0.1	0.3	...	0.6	2.6
	Thousand £s	132	228	63	5	15	...	81	313
Morocco	Thousand Tons	2.4	0.9	0.6	0.2	1.0	0.4	0.2	0.1
	Thousand £s	243	113	76	27	132	50	30	9
Netherlands Antilles[bd]	Thousand Tons	0.3	0.1	0.3	1.0	1.8	2.2	3.2	2.6
	Thousand £s	68	11	38	120	341	321	647	580
New Hebrides[bd]	Thousand Tons	0.4	0.4	0.4	0.7	1.7	2.0	2.1	1.8
	Thousand £s	59	79	71	144	241	302	372	261
Norway	Thousand Tons	5.3	0.1	1.0	1.7	0.8	1.0	0.9	0.6
	Thousand £s	636	19	141	245	151	207	216	150
Pacific Islands (British)[bd]	Thousand Tons	6.5	2.6	1.9	4.2	9.1	8.3	8.0	11.9
	Thousand £s	872	308	244	507	1 594	1 376	1 692	2 633
Pacific Islands (American)[bd]	Thousand Tons	–	–	–	0.8	1.2	1.1	0.6	0.1
	Thousand £s	–	–	–	44	105	103	41	6
Panama[bd]	Thousand Tons	0.1	–	0.1	2.0	1.0	0.3	1.7	2.4
	Thousand £s	10	–	3	224	170	42	276	480

Table A4 (*continued*)

Tuna: world exports: fresh, chilled and frozen (*continued*)

		1960–62 Average	1963	1964	1965	1966	1967	1968	1969
Peru	Thousand Tons	18.8	22.3	12.9	10.3	13.9	17.6	12.3	16.5
	Thousand £s	657	708	475	476	702	826	670	837
Philippines[e]	Thousand Tons	...	...	...	0.4	1.0	1.1	0.7	0.8
	Thousand £s	...	...	...	142	466	339	288	330
Ryukyu Islands[bd]	Thousand Tons	0.1	0.7	0.8	1.4	5.1	6.3	9.5	8.7
	Thousand £s	7	65	76	156	732	986	1 953	2 002
Sierra Leone[bd]	Thousand Tons	–	–	5.2	4.1	3.1	4.0	3.9	3.7
	Thousand £s	–	–	376	303	343	565	616	708
South Africa[bd]	Thousand Tons	0.5	–	0.2	1.5	1.2	2.1	3.1	4.6
	Thousand £s	64	–	20	170	189	368	544	1 012
South Korea	Thousand Tons	–	–	0.2[b]	–	2.5[b]	5.5[b]	14.5	21.3
	Thousand £s	–	–	14	4	327	669	2 020	3 353
Spain	Thousand Tons	...	–	6.2	–	0.1	–	0.9	2.6
	Thousand £s	...	2	286	–	19	–	167	434
Taiwan[b]	Thousand Tons	0.6	2.2	2.1	1.4	5.4	10.1	21.3	27.3
	Thousand £s	70	263	257	161	830	1 601	3 395	4 495
Trinidad[bd]	Thousand Tons	5.1	8.5	8.5	3.5	0.5	0.3	–	–
	Thousand £s	457	857	976	389	54	57	–	–
Turkey	Thousand Tons	3.5	0.1	1.2	3.7	5.8	3.1	0.3	5.3
	Thousand £s	282	20	132	355	582	383	62	743
USA[b]	Thousand Tons	...	...	...	1.3	1.3	2.3	2.8	5.6
	Thousand £s	...	...	...	152	141	282	398	954
West Malaysia[df]	Thousand Tons	...	...	4.0[b]	4.7[b]	9.9[b]	7.9	14.8	12.5
	Thousand £s	...	...	513	589	1 720	1 253	2 382	1 948
Other countries[g]	Thousand Tons	0.3	1.3	0.2	0.1	0.2	0.2	0.7	...
	Thousand £s	13	34	12	6	15	17	23	...

a See also Table A4a

b Figures are imputed from the exports statistics of other countries

c Includes a small quantity of fish other than tuna

d Known areas for trans-shipment

e Figures furnished by the Philippine Fisheries Commission

f Includes Singapore in 1964 and 1965

g Angola and Portugal

* Period 1st July 1962 – 30th June 1963 etc

– Nil or negligible

... Not available

Note: The statistics of importing countries have also recorded occasional exports from Cuba, Libya and the USSR

Source: *Trade Returns*

Table A4a

Tuna: total (recorded and imputed) exports: fresh, chilled and frozen

		Average 1960–62	1963	1964	1965	1966	1967	1968	1969
Total Exports	Thousand Tons	190.4	190.9	230.9	221.5	259.3	198.0	222.7	218.5
	Thousand £s	19 274	19 599	25 049	24 346	40 153	27 759	35 169	35 582
of which:									
(i) Recorded exports	Thousand Tons	176.0	174.5	197.6	181.2	203.6	131.5	123.9	96.8
	Thousand £s	17 471	17 909	21 634	20 103	31 846	18 387	18 594	14 841
(ii) Imputed exports*	Thousand Tons	11.3	15.0	26.0	30.2	38.3	44.4	62.8	79.4
	Thousand £s	1 668	1 609	2 712	3 235	5 746	6 716	11 433	14 387
(iii) Exports other than in (i) and (ii)**	Thousand Tons	3.1	1.4	7.3	10.1	17.4	22.1	36.0	42.3
	Thousand £s	135	81	703	1 008	2 561	2 656	5 142	6 354

* Figures imputed from the export statistics of other countries

** Exports which have been recorded for part of the period but imputed for the remainder are included in this separate category for the whole period. (Countries with exports in this group are Ecuador, South Korea and Malaysia)

Source: *Table A4*

Table A5

Tuna: world exports: canned

		1960–62 Average	1963	1964	1965	1966	1967	1968	1969
Totals[a]	Thousand Tons	72.8	76.3	77.6	72.1	83.7	78.6	84.7	89.4
	Thousand £s	19 462	22 086	21 839	20 134	25 752	26 549	31 968	36 250
of which to:									
Angola	Thousand Tons	0.9	0.9	0.8	1.2	1.8	1.2	3.1	...
	Thousand £s	173	197	171	200	293	226	652	...
Ecuador	Thousand Tons	1.5	2.2	2.3	1.8	1.7	2.0	1.4[b]	1.0[b]
	Thousand £s	314	400	449	402	379	497	407	325
France	Thousand Tons	1.2	0.9	0.6	0.5	0.8	0.7	0.7	0.7
	Thousand £s	566	440	513	243	503	374	448	455
Ivory Coast[b]	Thousand Tons	0.3	1.0	0.9	1.0	0.8	0.5	1.8	1.3
	Thousand £s	182	338	297	288	247	143	650	479
Japan	Thousand Tons	35.5	39.7	43.2	42.3	49.9	53.7	58.0	63.5
	Thousand £s	10 593	12 523	13 387	12 717	16 919	18 893	22 886	27 494
Morocco	Thousand Tons	3.8	2.7	3.4	1.7	1.8	1.7	1.2	0.8
	Thousand £s	993	750	873	501	577	562	501	345
Peru	Thousand Tons	16.2	12.3	14.3	10.5	12.3	4.5	3.8	3.1[c]
	Thousand £s	2 228	1 903	2 331	1 712	2 130	798	815	737
Portugal	Thousand Tons	3.4	3.9	2.3	3.6	3.0	2.2	1.3	2.7
	Thousand £s	995	1 183	595	965	899	728	433	957
Senegal[b]	Thousand Tons	3.8	6.5	5.3	5.5	6.5	6.7	8.0	7.8
	Thousand £s	1 474	2 369	1 764	1 673	2 010	2 121	3 017	2 814
Spain	Thousand Tons	3.9	3.9	2.2	2.3	2.3	2.8	2.1	2.9
	Thousand £s	1 263	1 396	797	957	1 029	1 263	972	1 442
West Malaysia	Thousand Tons	...	...	...	...	...	0.1	0.5	3.1
	Thousand £s	...	...	...	...	...	22	125	280
Yugoslavia[b]	Thousand Tons	2.0	2.0	2.0	1.5	2.2	1.6	1.8	1.6
	Thousand £s	577	485	554	398	576	538	678	520
Other countries[d]	Thousand Tons	0.3	0.3	0.3	0.2	0.6	0.9	1.0	0.9
	Thousand £s	104	102	108	78	190	384	384	402

... Not available

a See also Table A5a

b Figures are imputed from the import statistics of other countries

c FAO figures

d Of these countries Italy is the most important

Source: *Trade Returns*

Table A5a

Tuna: total (recorded and imputed) exports: canned

		1960–62 Average	1963	1964	1965	1966	1967	1968	1969
Total Exports	Thousand Tons	72.8	76.3	77.6	72.1	83.7	78.6	84.7	89.4
	Thousand £s	19 462	22 086	21 839	20 134	25 752	26 549	31 968	36 250
of which:									
Recorded Exports	Thousand Tons	66.7	66.8	69.4	64.1	74.2	69.8	73.1	78.8
	Thousand £s	17 241	18 894	19 224	17 775	22 919	23 747	27 623	32 446
Imputed Exports*	Thousand Tons	6.1	9.5	8.2	8.0	9.5	8.8	11.6	10.6
	Thousand £s	2 221	3 192	2 615	2 359	2 833	2 802	4 345	3 804

* Figures imputed from the import statistics of other countries

Source: *Table A5*

Table A6

Japan: fresh, chilled and frozen tuna: exports in 1969[a]

		Total Exports	Albacore	Skipjack	Yellowfin	Tuna Nes
Totals	Thousand Tons	65.4	26.5	6.9	29.0	3.0
	Thousand £s	11 540	5 537	565	5 123	315
of which to:						
USA[b]	Thousand Tons	39.1	21.7	3.7	13.4	0.3
	Thousand £s	7 436	4 754	307	2 336	39
Italy	Thousand Tons	14.0	–	0.7	12.3	1.0
	Thousand £s	2 527	–	63	2 338	126
Spain	Thousand Tons	2.7	0.2	1.6	0.9	–
	Thousand £s	256	21	139	91	5
Fiji	Thousand Tons	2.2	1.5	–	0.3	0.4
	Thousand £s	401	339	–	37	25
Malaysia	Thousand Tons	2.0	1.3	–	0.7	–
	Thousand £s	390	265	–	125	–
Ghana	Thousand Tons	2.0	–	0.9	0.5	0.6
	Thousand £s	144	3	56	40	45
Canada	Thousand Tons	0.8	0.5	–	0.3	–
	Thousand £s	156	99	–	57	–
Other countries[c]	Thousand Tons	2.6	1.3	–	0.6	0.7
	Thousand £s	230	56	–	99	75

– Nil or negligible.

a In 1970 total exports were provisionally 61.4 thousand tons and valued at £13 317 thousand.

b Including Puerto Rico and United States Samoa.

c Including Yugoslavia, France and Denmark.

Source: *Trade of Japan,* Japan Tariff Association.

Table A7

Japan: canned tuna: exports in 1969 by destination

		Totals	Albacore	Other Canned Tuna
Totals	Thousand Tons	63.5	29.0	34.5
	Thousand £s	27 494	14 868	12 626
of which to:				
USA	Thousand Tons	31.0	24.9	6.1
	Thousand £s	15 200	12 742	2 458
German Fed. Rep.	Thousand Tons	12.8	—	12.8
	Thousand £s	4 094	—	4 094
United Kingdom	Thousand Tons	3.9	—	3.9
	Thousand £s	1 609	—	1 609
Canada	Thousand Tons	2.9	1.9	1.0
	Thousand £s	1 390	993	397
Switzerland	Thousand Tons	2.2	0.8	1.4
	Thousand £s	981	449	532
Belgium/Luxembourg	Thousand Tons	1.9	0.2	1.7
	Thousand £s	677	83	594
Netherlands	Thousand Tons	1.9	0.3	1.6
	Thousand £s	640	131	509
Ryukyu Islands	Thousand Tons	1.2	—	1.2
	Thousand £s	450	—	450
Other countries*	Thousand Tons	5.7	0.9	4.8
	Thousand £s	2 453	470	1 983

— Nil or negligible.

* The most important of these are Austria, Kuwait and Syria.

Source: *Trade of Japan,* Japan Tariff Association.

Table A8

Japan: canned tuna: exports in 1969 by type

	Thousand Tons	Thousand £s
Albacore in oil	3.9	2 043
Albacore in brine	25.0	12 801
Albacore in jellies or tomato paste	0.1	24
Tuna excluding albacore in oil	7.3	2 915
Tuna excluding albacore in brine	0.1	52
Bonito in oil	9.4	3 890
Bonito in brine	6.1	2 440
Tuna and Bonito in jellies and tomato paste	0.3	120
Tuna and Bonito 'other'	11.3	3 209
Totals	63.5	27 494

Source: *Trade of Japan,* Japan Tariff Association.

Table A9

Peru: fresh, chilled and frozen tuna: exports in 1968

		Totals	Skipjack	Bonito	Tuna Nes
Totals	Thousand Tons	16.5	10.9	0.9	4.7
	Thousand £s	837	516	47	274
of which to:					
USA	Thousand Tons	12.1	9.1	–	3.0
	Thousand £s	603	428	–	175
Western Samoa	Thousand Tons	2.7	1.8	–	0.9
	Thousand £s	138	88	–	50
Yugoslavia	Thousand Tons	0.6	–	0.6	–
	Thousand £s	29	–	29	–
Argentina	Thousand Tons	0.3	–	0.3	–
	Thousand £s	18	–	18	–
Other countries	Thousand Tons	0.8	–	–	0.8
	Thousand £s	49	–	–	49

– Nil or negligible.

Source: *Comercio Exterior,* Ministerio de Hacienda y Comercio, Peru.

Table A10

Peru: canned tuna: exports in 1968 by type

	Thousand Tons	Thousand £s
Bonito in oil	3.2	709
Bonito in brine	0.5	84
Bonito in tomato sauce	0.1	14
Bonito in water	–	5
Tuna in oil	–	3
Totals	3.8	815

– Nil or negligible.

Source: *Comercio Exterior,* Ministerio de Hacienda y Comercio, Peru.

Table A11

Peru: canned tuna: exports in 1968 by destination

	Thousand Tons		Thousand £s	
Total	3.8	(3.1)*	815	(737)
of which to:				
United Kingdom	0.8	(0.9)	160	
Canada	0.5	(0.2)	115	
Netherlands	0.5	(0.1)	109	
USA	0.4	(0.2)	72	
Panama	0.2		42	
Other countries	1.4		317	

* 1969 figures where available are given in brackets. These are taken from the yearbook of Fishery Statistics **29**, FAO.

Source: *Comercio Exterior,* Ministerio de Hacienda y Comercio, Peru.

Table A12
Tuna: world imports: fresh, chilled and frozen

		1960–62 Average	1963	1964	1965	1966	1967	1968	1969
Totals[a]	Thousand Tons	166.0	171.0	196.2	197.3	230.7	221.7	266.8	256.0
	Thousand £s	17 804	18 887	22 364	22 602	35 405	33 971	46 311	44 694
of which from:									
Argentina[b]	Thousand Tons	–	–	–	–	2.1	1.2	1.0	0.3
	Thousand £s	–	–	–	–	107	69	62	18
Canada	Thousand Tons	...	1.1	3.5	2.7	2.7	5.0	4.6	1.6
	Thousand £s	...	155	446	323	447	883	940	311
Czechoslovakia[b]	Thousand Tons	2.4	1.0	3.4	2.9	1.5	...	...	...
	Thousand £s	265	91	296	248	198	...	...	...
Fiji[bc]	Thousand Tons	–	–	1.1	3.3	4.6	3.6	3.1	2.1
	Thousand £s	–	–	106	303	545	410	419	401
France	Thousand Tons	3.4	8.1	1.1	2.3	1.6	1.8	2.5	2.6
	Thousand £s	516	1 242	189	353	308	342	589	625
Ghana[bc]	Thousand Tons	0.2	1.2	0.3	0.5	0.1	0.7	2.3	1.9
	Thousand £s	19	103	18	41	4	33	137	144
Greece[b]	Thousand Tons	0.7	0.1	0.9	1.6	1.6	...	...	...
	Thousand £s	63	17	100	168	199	...	...	...
Italy	Thousand Tons	29.8[b]	35.2[b]	29.1[b]	30.3	34.7	46.3	56.8	48.3
	Thousand £s	2 837	4 131	3 401	4 139	5 871	8 548	11 246	9 191
Japan	Thousand Tons	0.1	0.8	2.4	2.5	10.6	15.9	28.5	34.6
	Thousand £s	9	82	230	286	1 350	2 065	4 450	5 879
New Hebrides[bc]	Thousand Tons	3.2	2.2	2.6	1.7	1.2	1.0	0.5	0.2
	Thousand £s	203	165	218	142	110	103	72	30
Spain	Thousand Tons	...	0.8	0.7	7.5	6.7	4.5	3.7	4.9
	Thousand £s	...	90	69	1 015	914	627	451	694
USA	Thousand Tons	104.8	103.8	128.5	122.3	137.0	116.5	140.1	141.7
	Thousand £s	11 760	10 922	14 608	13 188	21 725	17 289	24 153	24.750
United States Samoa[bc]	Thousand Tons	9.7	5.3	7.4	6.2	15.3	9.7	5.7	6.0
	Thousand £s	1 024	565	754	706	2 058	1 316	923	762
West Malaysia[cd]	Thousand Tons	...	...	1.8[b]	4.7[b]	6.0[b]	11.2	13.6	7.9
	Thousand £s	...	...	213	493	922	1 626	2 101	1 217
Yugoslavia	Thousand Tons	11.3[b]	11.4[b]	12.2[b]	8.5	3.9	3.1	3.5	3.3
	Thousand £s	1 054	1 324	1 507	1 145	388	353	511	476
Other countries[e]	Thousand Tons	0.4	–	1.2	0.3	1.1	1.2	0.9	0.6
	Thousand £s	54	–	209	52	259	307	257	196

– Nil or negligible. ... Not available.

a See also Table A 12A.
b Figures imputed from the export statistics of other countries.
c Known areas for trans-shipment.
d In 1964 and 1965 includes Singapore.
e Denmark, German Fed Rep and the Netherlands.

Source: *Trade Returns.*

Table A12a

Tuna: total (recorded and imputed) imports: fresh, chilled and frozen

		Average 1960–62	1963	1964	1965	1966	1967	1968	1969
Total Imports	Thousand Tons	166.0	171.0	196.2	197.3	230.7	221.7	266.8	256.0
	Thousand £s	17 804	18 887	22 364	22 602	35 405	33 971	46 311	44 694
of which:									
(i) Recorded Imports	Thousand Tons	108.7	114.6	137.4	137.6	159.7	144.9	180.3	186.0
	Thousand £s	12 339	12 491	15 751	15 217	25 003	21 513	30 840	32 455
(ii) Imputed Imports[a]	Thousand Tons	16.2	9.8	15.7	16.2	26.4	16.2	12.6	10.5
	Thousand £s	1 574	941	1 492	1 608	3 221	1 931	1 613	1 355
(iii) Imports other than those in (i) and (ii)[b]	Thousand Tons	41.1	46.6	43.1	43.5	44.6	60.6	73.9	59.5
	Thousand £s	3 891	5 455	5 121	5 777	7 181	10 527	13 858	10 884

a Figures are imputed from the export statistics of other countries.

b Imports which have been recorded for part of the period but imputed for the remainder are included in this separate category for the whole period (Countries with imports in this group are Italy, West Malaysia and Yugoslavia).

Source: *Table A12.*

Table A13

Tuna: world imports: canned

		1960–62 Average	1963	1964	1965	1966	1967	1968	1969
Totals[a]	Thousand Tons	67.1	74.1	75.3	72.0	79.6	77.8	81.9	83.5
	Thousand £s	19 135	22 981	22 432	20 951	25 971	26 493	32 434	34 834
of which:									
Austria[b]	Thousand Tons	–	0.1	–	0.1	0.2	0.3	0.4	0.9
	Thousand £s	3	18	13	36	53	105	138	301
Belgium/Luxembourg	Thousand Tons	2.4[b]	2.3[b]	2.7[b]	1.8[b]	3.6	3.2	3.1	3.4
	Thousand £s	448	563	589	475	906	860	1 021	1 147
Brazil	Thousand Tons	...	...	...	...	0.3	0.4	0.5	0.5
	Thousand £s	...	...	...	...	73	115	185	200
Canada	Thousand Tons	2.2	2.4	2.9	3.2	3.1	4.2	3.3	3.4
	Thousand £s	650	743	830	970	1 032	1 447	1 287	1 536
France	Thousand Tons	7.9	11.1	10.0	8.8	9.0	8.9	11.5	9.7
	Thousand £s	2 726	3 771	3 182	2 637	2 749	2 763	4 357	3 528
German Fed. Rep.	Thousand Tons	7.6[b]	7.2[b]	10.4[b]	12.7[b]	12.0	11.7	13.6	14.8
	Thousand £s	1 795	1 761	2 515	3 194	3 485	3 472	4 630	5 061
Italy	Thousand Tons	7.3	6.6	4.6	5.6	4.9	3.0	3.3	3.9
	Thousand £s	1 901	1 975	1 403	1 707	1 458	1 039	1 369	1 497
Kuwait[b]	Thousand Tons	0.3	0.6	0.4	0.4	0.6	0.7	0.4	0.4
	Thousand £s	80	156	112	113	175	216	150	171
Lebanon[b]	Thousand Tons	0.3	0.4	0.5	0.6	0.6	0.9	0.6	0.5
	Thousand £s	93	115	134	172	225	336	267	281
Malta[b]	Thousand Tons	0.2	0.3	0.3	0.2	0.6	0.6	0.2	0.3
	Thousand £s	54	81	67	43	190	297	86	134
Mozambique	Thousand Tons	0.1	0.1	0.2	0.3	0.3	0.4	0.6	...
	Thousand £s	31	27	52	72	71	82	153	...
Netherlands	Thousand Tons	1.5[b]	1.7[b]	2.4[b]	2.0[b]	0.8	0.8	1.0	0.8
	Thousand £s	297	362	511	432	239	235	354	275
Ryukyu Islands[b]	Thousand Tons	0.3	0.5	0.7	0.7	0.7	0.9	0.9	1.2
	Thousand £s	60	119	172	184	199	269	306	450
Saudi Arabia[b]	Thousand Tons	0.3	0.5	0.3	0.3	0.7	0.3	0.1	0.1
	Thousand £s	81	144	77	85	232	108	51	42
South Yemen[b]	Thousand Tons	0.3	0.3	0.4	0.4	0.4	0.7	0.4	0.2
	Thousand £s	71	102	125	117	121	225	141	88
Sweden	Thousand Tons	0.2	0.3	0.5	0.4	0.6	0.5	0.7	0.7
	Thousand £s	50	66	101	85	140	125	203	212
Switzerland[b]	Thousand Tons	3.0	3.3	2.9	2.7	2.7	2.9	3.1	3.6
	Thousand £s	1 003	1 192	938	963	1 120	1 238	1 362	1 790

Table A13 (*continued*)

Tuna: world imports: canned (*continued*)

		1960–62 Average	1963	1964	1965	1966	1967	1968	1969
United Kingdom	Thousand Tons	2.8	3.8	3.7	2.4	3.1	3.6	4.2	4.9
	Thousand £s	778	1 138	1 073	686	983	1 193	1 536	1 987
USA[c]	Thousand Tons	30.0	32.1	31.8	28.9	34.8	33.1	33.4	33.6
	Thousand £s	8 923	10 516	10 379	8 884	12 343	12 155	14 604	15 898
Other countries[d]	Thousand Tons	0.4	0.5	0.6	0.5	0.6	0.7	0.6	0.6
	Thousand £s	91	132	159	96	177	213	234	236

... Not available. — Nil or negligible.

a See also Table A13a.

b Figures are imputed from the export statistics of other countries.

c Includes small quantities of yellowtail and excludes small quantities of bonito.

d Denmark, Finland and Greece. Small quantities of imports have also been recorded by Spain, Venezuela and Uruguay.

Source: *Trade Returns.*

Table A13a

Tuna: total (recorded and imputed) imports: canned

		Average 1960–62	1963	1964	1965	1966	1967	1968	1969
Total Imports	Thousand Tons	67.1	74.1	75.3	72.0	79.6	77.8	81.9	83 5
	Thousand £s	19 135	22 981	22 432	20 951	25 971	26 493	32 434	34 834
of which:									
(i) Recorded Imports	Thousand Tons	50.8	56.8	54.1	49.8	56.4	54.4	57.5	57 3
	Thousand £s	15 119	18 341	17 127	15 065	18 955	19 050	23 775	25 094
(ii) Imputed Imports[a]	Thousand Tons	4.8	6.1	5.7	5.7	6.8	7.7	6.7	7.2
	Thousand £s	1 479	1 954	1 690	1 785	2 386	2 876	2 654	3 257
(iii) Imports other than those in (i) and (ii)[b]	Thousand Tons	11.5	11.2	15.5	16.5	16.4	15.7	17.7	19 0
	Thousand £s	2 537	2 686	3 615	4 101	4 630	4 567	6 005	6 483

■ Figures imputed from the exports statistics of other countries

b Imports which have been recorded for part of the period but imputed for the remainder are included in this separate category for the whole period (Countries with imports in this group are Belgium/Lux. the German Fed. Rep., Italy and the Netherlands)

Source: *Table A13*

Table A14

USA: fresh, chilled and frozen tuna: imports in 1969[a]

		Totals	Albacore	Skipjack	Yellowfin	Not Specified
Totals	Thousand Tons	141.7	70.8	23.2	44.6	3.1
	Thousand £s	24 750	14 276	2 536	7 582	356
of which from:						
Japan	Thousand Tons	66.5	38.5	4.6	23.0	0.4
	Thousand £s	12 428	7 962	435	3 977	54
Malaysia	Thousand Tons	8.5	3.0	–	5.5	–
	Thousand £s	1 615	662	–	953	–
Ecuador	Thousand Tons	8.5	–	7.5	1.0	–
	Thousand £s	1 053	–	915	138	–
British Pacific Islands	Thousand Tons	11.9	8.4	–	3.5	–
	Thousand £s	2 633	1 970	–	661	2
Peru	Thousand Tons	9.8	–	8.2	1.6	–
	Thousand £s	1 084	–	855	229	–
Sierra Leone	Thousand Tons	3.6	3.1	0.2	0.3	–
	Thousand £s	708	627	16	65	–
South Africa	Thousand Tons	4.6	4.4	–	–	0.2
	Thousand £s	1 006	957	–	–	49
Other countries	Thousand Tons	28.3	13.4	2.7	9.7	2.5[b]
	Thousand £s	4 223	2 098	315	1 559	251

– Nil or negligible

a Total imports in 1970 are provisionally estimated at 154 000 tons at a value of £33 086 thousand

b Mostly from Mexico

Source: *Bureau of Census Reports FT 110,* Department of Commerce, USA

Table A15

USA: canned tuna: imports in 1969*

		Totals	Albacore	Other Tunas
Totals	Thousand Tons	33.6	23.3	10.3
	Thousand £s	15 898	11 880	4 018
of which from:				
Japan	Thousand Tons	30.1	22.6	7.5
	Thousand £s	14 734	11 584	3 150
Ecuador	Thousand Tons	1.0	–	1.0
	Thousand £s	325	–	325
Portugal	Thousand Tons	0.9	0.4	0.5
	Thousand £s	313	141	172
Angola	Thousand Tons	0.9	0.2	0.7
	Thousand £s	266	73	193
Malaysia	Thousand Tons	0.2	–	0.2
	Thousand £s	78	–	78
Peru	Thousand Tons	0.1	–	0.1
	Thousand £s	33	–	33
Other countries	Thousand Tons	0.4	0.1	0.3
	Thousand £s	149	82	67

– Nil or Negligible

* Imports in 1970 are provisionally estimated at 33 600 tons valued at £19,285 thousand

Source: *Bureau of Census Report FT 100,* Department of Commerce, USA

Table A16

European Economic Community: fresh, chilled and frozen tuna: imports in 1969

		EEC Totals	Italy	Other EEC countries
Totals	Thousand Tons	51.1	48.3	2.8*
	Thousand £s	9 896	9 191	705
of which from:				
Japan	Thousand Tons	26.9	24.9	2.0
	Thousand £s	5 229	4 761	468
Taiwan	Thousand Tons	8.3	8.3	–
	Thousand £s	1 639	1 639	–
USA	Thousand Tons	3.6	3.6	–
	Thousand £s	604	604	–
Spain	Thousand Tons	3.1	3.1	–
	Thousand £s	527	527	–
South Korea	Thousand Tons	2.4	2.4	–
	Thousand £s	483	483	–
France	Thousand Tons	2.3	2.3	–
	Thousand £s	401	401	–
Cuba	Thousand Tons	2.2	2.2	–
	Thousand £s	385	385	–
Other countries	Thousand Tons	2.3	1.5	0.8
	Thousand £s	628	391	237

– Nil or Negligible

* Of which imports by France were 2 600 tons, valued at £625 000

Source: *Trade Returns*

Table A17

European Economic Community: canned tuna: imports in 1969

		EEC Totals	Belgium/ Luxembourg	Fed. Rep. Germany	France	Italy	Netherlands
Totals	Thousand Tons	32.6	3.4	14.8	9.7	3.9	0.8
	Thousand £s	11 508	1 147	5 061	3 528	1 497	275
of which from:							
Japan	Thousand Tons	15.4	1.8	13.2	–	...	0.4
	Thousand £s	5 237	605	4.483	–	...	149
Yugoslavia	Thousand Tons	1.6	0.8	0.5	0.3	...	–
	Thousand £s	517	211	167	136	...	3
Senegal	Thousand Tons	7.9	–	0.2	7.7	–	–
	Thousand £s	2 814	–	61	2 753	–	–
Ivory Coast	Thousand Tons	1.3	–	–	1.3	...	–
	Thousand £s	479	–	–	479	...	–
Morocco	Thousand Tons	0.7	–	–	0.3	0.4	–
	Thousand £s	289	–	–	112	177	–
Portugal	Thousand Tons	1.7	–	–	–	1.7	–
	Thousand £s	635	–	–	–	635	–
Spain	Thousand Tons	0.9	–	–	–	0.9	–
	Thousand £s	395	–	–	–	388	7
Other countries	Thousand Tons	3.1	0.8	0.9	0.1	0.9	0.4
	Thousand £s	1 142	331	350	48	297	116

– Nil or negligible

... Not available

Source: *Trade Returns*

Table A18

United Kingdom: canned tuna: imports in 1970

	Thousand Tons	Thousand £s
Totals	5.0	2 332
of which from:		
Japan	3.8	1 795
Peru	0.6	208
Malaysia	0.2	104
Yugoslavia	0.2	106
USSR	0.1	41
Other countries*	0.1	78

* Of which Spain is the most important

Source: *Trade of the United Kingdom,* HM Customs and Excise

Table A19

Tuna: ex-vessel prices in the USA, 1965 to 1971

$ per short ton

Species/Year		I	II	III	IV	Range Low	Range High
Albacore	1965	–	–	325	325	325	325
	1966	–	–	375	390	375	390
	1967	–	–	395	400	390	400
	1968	–	–	425	425	425	425
	1969	–	–	450	450	450	450
	1970	–	–	550	550	550	550
Bluefin	1965	–	267	261	245	208	271
	1966	–	295	281	306	262	306
	1967	275	235	236	237	235	280
	1968	237	–	292	295	237	295
	1969	301	305	293	306	276	306
	1970	326	348	356	367	326	373
	1971	392	400				
Skipjack	1965	200	218	215	237	200	276
	1966	359	304	268	283	263	374
	1967	266	209	205	205	205	293
	1968	240	260	265	266	205	266
	1969	270	274	276	278	268	279
	1970	295	309	327	337	291	339
	1971	362	368				
Yellowfin*	1965	270	281	281	298	270	326
	1966	420	359	324	353	320	447
	1967	324	269	266	267	265	358
	1968	281	311	315	316	267	316
	1969	320	325	326	328	318	330
	1970	345	360	377	387	341	391
	1971	412	418				

– not quoted

* premium grade

Source: *Food Fish—Canned Products Situation and Outlook,* August 1971, US Dept of Commerce

Table A20

Tuna: fresh, chilled and frozen: prices of imports into the USA, 1965 to 1971

$ per short ton—f.o.b. Japan

Species/Year		I	II	III	IV	Range Low	Range High
Albacore (clipper caught, over 20lb)	1965	308	313	320	427	305	430
	1966	516	510	478	500	463	530
	1967	462	413	475	467	405	500
	1968	451	464	452	460	449	468
	1969	461	482	502	513	458	516
	1970	538	637	712	768	538	748
	1971	722*					
Yellowfin (gilled and gutted 20–100 lb)	1965	316	310	315	416	309	418
	1966	500	458	422	453	413	523
	1967	418	371	391	394	360	450
	1968	398	375	369	371	370	407
	1969	369	377	392	395	368	397
	1970	434	524	595	672	402	679

Prices are quarterly averaged and are based on sales made to Californian canneries

* January 1971 only

Source: *Food and Fish Situation and Outlook,* March 1971, US Dept of Commerce

Table A21

Tuna: canned: prices of imports into the USA, 1965 to 1971

$ per case

Year/Type of Pack	I	II	III	IV	Range Low	Range High
Brine Pack						
White Solid (No ½–7 oz 48s)						
1965	12.75	12.75	12.58	12.25	12.25	12.88
1966	13.55	14.38	14.38	14.38	12.63	14.38
1967	14.38	13.64	12.90	13.47	12.90	14.38
1968	14.01	13.95	13.95	14.15	13.95	14.56
1969	14.41	14.48	14.71	15.56	14.41	15.81
1970	15.92	16.54	17.93	18.81	15.81	19.22
1971	19.22	19.22				
Light Solid Pack (No ½–7 oz 48s)						
1964	10.00	10.00	10.00	10.00	10.00	10.00
1965	10.00	10.25	10.25	10.25	10.00	10.25
1966	11.83	14.08	14.12	14.12	10.75	14.12
1967	14.12	12.26	10.40	11.01	10.40	14.12
1968	11.06	11.02	11.02	11.14	11.02	11.39
1969	11.27	11.35	11.56	12.32	11.27	12.51
1970	12.71	13.59	14.09	14.58	12.51	14.79
1971	14.79	14.79				

The above are wholesale prices reported at Los Angeles by San Diego brokers and cannery representatives, f.o.b. canners' terminal

Source: *Food Fish Canned Products Situation and Outlook,* August 1971, US Dept of Commerce

Table A22

Tuna: retail prices in the USA, 1965 to 1971

Light chunk 6½ oz cans *Cents per can*

Year	I	II	III	IV	Range Low	Range High
1965	32.2	31.8	32.1	31.8	31.8	32.2
1966	33.1	35.8	36.4	35.9	32.2	36.4
1967	35.6	35.2	34.4	34.4	34.2	35.9
1968	34.1	34.3	34.8	34.9	33.7	35.0
1969	35.2	35.5	35.6	36.6	35.1	36.9
1970	38.6	39.2	38.1	42.2	37.6	42.7
1971	43.6	44.3*				

These are average retail prices in leading cities in the USA as collected and published by the Bureau of Labour Statistics.

* To May 1971

Source: *Food Fish Canned Products Situation and Outlook,* August 1971

Appendix B

Tuna: definitions

A questionnaire was sent to a number of countries prominent in the tuna trade. Amongst the questions asked was, 'What fish are included under the heading of tuna in your country's trade statistics?'. The replies given are reproduced below:

Argentina

Albacore
Yellowfin
Bluefin
Bigeye
Skipjack

Ceylon

Albacore
Yellowfin
Bluefin
Bigeye
Skipjack
Mackerel tuna and frigate mackerel
Black marlin
Blue marlin
Short nosed sperefish
Broad bill sword fish
Sailfish

Ecuador

Yellowfin
Bigeye
Skipjack

France

Albacore (in French this is 'germon')
Yellowfin (in French this is 'albacore')
Bigeye
Bluefin
Skipjack

Japan

(*a*) *Exports (raw/frozen)*

Albacore
Yellowfin
Bluefin
Other tunas
Broadbill swordfish
Other billfishes
Skipjack
Other bonitos

Japan—continued

(*b*) *Exports (canned)*

Albacore
Other Tunas
Skipjack

(*c*) *Imports (raw/frozen)*

Albacore
Yellowfin
Bluefin
Other Tunas
Billfishes
Skipjack

Malaysia

Albacore
Yellowfin
Bluefin
Bigeye
Skipjack
White marlin
Black marlin
Striped marlin
Swordfish
Sharks
Sailfish
Ikan Kayu

United States of America

Albacore
Yellowfin
Bluefin
Northern bluefin
Southern bluefin
Bigeye
Oriental tuna
Little tunny
Kawakawa
Blackfin
Skipjack

Appendix C

Tuna species and their distribution

1. **Thunnus**

There are six species:—

a. *Thunnus thynnus* L. 1758
Bluefin tuna
Distribution: cosmopolitan

b. *Thunnus alalunga* Bonn. 1788
Albacore
Distribution: warm seas, mainly in northern hemisphere

c. *Thunnus (Parathunnus) obesus* Lowe 1839
Bigeye or false albacore
Distribution: cosmopolitan in warm seas

d. *Thunnus (Neothunnus) albacora* Lowe 1839
Yellowfin tuna
Distribution: cosmopolitan

e. *Thunnus (Kishinoella) tonggol* Blaeker 1852
Indian longtailed tuna
Distribution: Indian Ocean from the Gulf of Aden eastwards to Japan and Australia

f. *Thunnus (Kishinoella) zacalles* Fraser-Brunner 1950
Pacific longtailed tuna
Distribution: Hawaii

2. **Sarda**

There are three species:—

a. *Sarda chilensis* (Cuvier & Valenciennes) 1831
Chilean bonito
Distribution: Pacific coast of America from California to Chile

b. *Sarda sarda* Bloch 1793
Atlantic bonito
Distribution: Atlantic and Mediterranean

c. *Sarda orientalis* (Temminck & Schlegel) 1842
Oriental bonito
Distribution: warmer parts of Atlantic, Indian and Pacific Oceans

3. **Allothunnus**

There is only one specie:—

Allothunnus fallai Serventy 1948
Slender tuna
Distribution: New Zealand

4. **Orcynopsis**

There is only one specie:—

Orcynopsis unicolor (Saint-Hilaire) 1809
Plain bonito
Distribution: Mediterranean

5. **Gymnosarda**

There are two species:—

a. *Gymnosarda elegans* (Whitley) 1935
Elegant or Watsons bonito
Distribution: Australia

b. *Gymnosarda unicolor* Fraser-Brunner 1950
Rüppells bonito
Distribution: Indo-Pacific from the Red Sea to Japan

6. **Euthynnus**

There are three species:—

a. *Euthynnus affinis* (Cantor) 1850
Eastern little tunny
Distribution: Indian and Pacific Oceans

b. *Euthynnus alletteratus* Raf. 1810
Atlantic little tunny
Distribution: Atlantic and Mediterranean

c. *Euthynnus (Katsuwonus) pelamis* L. 1958
Skipjack or oceanic bonito
Distribution: cosmopolitan

7. **Auxis**

There is only one species:—

Auxis thazard Lac. 1802
Frigate mackerel
Distribution: cosmopolitan

Source: *FRASER-BRUNNER, A.* 1950. Fish of the family Scombridae. *Annals and Magazine of Natural History,* Series 12, **3**, 131–163. British Museum (Natural History), London.

Appendix D

Results of surveys into the mercury content of tuna

United Kingdom

After an examination of some 50 samples of canned tuna by the Laboratory of the Government Chemist had revealed that levels of mercury in cans on sale in the UK were similar to those found in the USA, the Minister of Agriculture, Fisheries and Food announced in January 1971 a scheme for the monitoring of canned and fresh fish (and of some other foods of importance in the national diet) for the presence of mercury, especially methylmercury compounds. This followed reports from the United States in December 1970 that high levels of methyl mercury compounds had been found in canned tuna.

The results of the monitoring scheme were published in *Survey of Mercury in Food**, from which the notes below have been extracted.

Table 2 gave the amount of mercury in major food items of the national diet and in canned fish. The findings were expressed as mg total mercury per kg. For canned tuna, six samples were analysed. The mean mercury content was 0.18 and the range 0.12–0.3. The mean amounts in other canned fish examined ranged from 0.01 to 0.04 mg/kg and were about one order of magnitude lower than the amounts found in canned tuna (Para 14).

Appendix V of the Survey gave the results of an investigation of mercury in food initiated by the Association of Public Analysts. The average concentration of total mercury in canned tuna from analyses of 287 samples was found to be 0.19 mg/kg. The range was 0–0.9. The mercury contents of other canned fish were similar to those obtained in the monitoring programme.

In the conclusions to the survey to the survey it was noted (Para 32 (v)) that those sections of the community consuming large amounts of canned tuna might consume well above average amounts of mercury.

The report was submitted to the Pharmacology Sub-Committee of the Committee on Medical Aspects of Food Policy and the Food Additives and Contaminants Committee. The general conclusion reached by these committees was that there was no evidence of harm to health from present levels of mercury in food for the average consumer.

United States of America

The testing programme in the United States took the form of the examination by the Food and Drug Administration (part of the US Department of Health, Education and Welfare) of 3 million cases of imported and over 5 million cases of domestically packed tuna.

* *Survey of Mercury in Food* Ministry of Agriculture, Fisheries and Food, HMSO 1971.

3.6 per cent of 4 000 imported can codes examined exceeded the 0.5 ppm guide line.* Malaysian Big-Eye Tuna accounted for one third of the violative codes.

The domestic sampling programme was conducted by industry and audited by the Food and Drug Administration. This involved analysis of some 1 000 master lots comprising 269 million cans from 12 000 codes. 39 of the master lots representing 378 codes (180 400 cases) or 3.6 per cent of the canned tuna tested were found to exceed the guideline. (A master lot was made up of fish of the same species taken from a common catch point by a single boat).

Since the completion of the testing programme the Food and Drug Administration has given new assurance in the form of a statement by the Commissioner, Dr Charles C. Edwards. 'With the exception of swordfish the Food and Drug Administration continues to find no hazard to the consuming public from mercury contamination in deep water food fish'. A nationwide testing programme is to be maintained.

* 0.5 parts per million of mercury.

Appendix E

Tuna: tariffs and imports taxes in selected countries

All duties quoted below are, unless otherwise stated, *'ad valorem'* and based upon the cif values of the goods. The tariff numbers given are those under which tuna is liable for duty. Tuna does not always appear specifically in tariff publications but may be included in the 'others' category.

The duties given are as at 1 January 1971.

UNITED STATES OF AMERICA*

Fresh, chilled or frozen fish

TN 110.10
Tuna (including bonito)
Duty Free

Fish, dried, whether or not whole, but not otherwise prepared or preserved and not in airtight containers

TN 111.18
0.1 ¢ a lb, if from Communist countries 1.25 ¢ a lb

Fish prepared or preserved in any manner, not in oil, in airtight containers

TN 112.05
Bonito and yellowtail
7% or if from Communist countries, 25%

TN 112.30
Tuna in airtight containers, prepared or preserved in any manner, except in oil and weighing with their contents 15 lb or less.
7.0% or, if from Communist countries, 25%. Tuna may be imported at this rate of duty up to a limit of 20% of the US canned tuna pack in the preceding calendar year

TN 112.34
Tuna in airtight containers, if prepared or preserved in any manner, but not in oil, weighing with their contents, more than 15 lb, or in containers weighing 15 lb or less, which for some reason are not eligible for entry under 112.30.
15.0% or, if from Communist countries, 25%. These rates apply to canned imports in excess of the quota mentioned in TN 112.30.

* In the case of the United States duties are assessed on the FOB value of imports.

Fish prepared or preserved in any manner in oil in airtight containers (any weight)

TN 112.42

Bonito 9% or, if from Communist countries, 30%

TN 112.90

Tuna 35% or, if from Communist countries, 45%

Fish, prepared or preserved not specially provided for

TN 113.50

Tuna prepared or preserved other than dried salted, pickled, smoked or kippered if in oil and other than in airtight containers. 15% or, if from Communist countries, 30%.

TN 113.56

Tuna, prepared or preserved, other than dried, salted, smoked or kippered, and other than in airtight containers, not in oil, if shipped in bulk, or in immediate containers weighing, with their contents, over 15 lb each. 0.5 ¢ a lb or if from Communist countries 1.25 ¢ per lb.

TN 113.60

As TN 113.56 except that this section applies to tuna *not* shipped in bulk or in containers weighing with their contents over 15 lb. 7% or, if from Communist countries, 25%.

Kennedy Round

Certain of the above rates of duty were reduced with respect to articles entered on or after 1 January 1972. These were as under:

TN	
112.05	6.0%
112.30	6.0%
112.34	12.5%
112.42	7.5%
113.50	12.5%
113.60	6.0%

EUROPEAN ECONOMIC COMMUNITY

Since 1 July 1968 when the final stage in the harmonisation of common tariffs was reached there have been no Inter-Community duties but a Common External Tariff (CET) applying to imports from all countries outside the Community. The CET rates for tuna are:

TN 03.01

B.1 (b) Fresh, (live or dead) chilled or frozen 22.6% (22%)*. This is subject to compliance with the reference price. A countervailing tax is provided for in the case of non-compliance with this. Tuna intended for the canning industry is exempted within the limits of an annual tariff quota. The amount of this quota varies, but over the past five years its trend has generally been upward from 40 000 metric tons in 1965 to 69 000 metric tons in 1970. The quota is dividied up between the various countries with the bulk of the allotment going to Italy as the main importer of tuna for canning.

TN 03.01

B.11 (a) Deep frozen fillets 18%

TN 03.02

A.1 (f) Salted, in brine or dried

1 Whole, headless or in pieces 12%

B.II (a)i Fillets 16.4% (16%)

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* In certain cases, these rates are reduced on and from 1 January 1972. Where applicable these are given in brackets.

BV Smoked 14.4% (14%)

TN 16.04
Prepared or preserved
E. Tuna 24.2% (24%)
F. Bonito and frigate mackerel 25%

Apart from bearing these duties, imports of tuna are also subject to additional taxes from which (unlike in the case of customs duties) members of the EEC are not exempted. The most common of these taxes is that levied on value added. It applies only to canned imports and is levied on their duty paid value.
The additional taxes applicable in the particular countries are as follows:

Belgium

Added Value Tax 6%

Luxembourg

Added Value Tax 10%

France

(i) Added Value Tax 7.5%
(ii) Parofiscal Tax

This is levied at the following rates:—

a. At 0.16% on imports of tuna not in canned form and not intended for the canning industry.
b. At 0.11% on canned imports or on raw imports intended for canning.

(iii) Special tax on oils

This applies to canned imports coming under TN 16.04 and containing more than 5 per cent oil. The applicable rates are:—

Imports in	Duty in Francs per kg semi-gross
Olive oil	0.034
Vegetable oil or oil of marine animals	0.03
In tomato and in vegetable oil, or in oil of marine animals, containing oil in a proportion of:—	
15% or less	0.01
Between 15% and 25%	0.02
More than 25%	0.03

Import licensing: An import licence is required for tuna presented in hermetically sealed containers, in boxes, glasses, jars, tubes and similar containers (other forms of presentation do not require a licence).

Federal Republic of Germany

Import Turnover Tax 5.5%.

This is the German equivalent of the value added tax. It is levied as a percentage of duty paid value plus transport charges to the first place of destination and applies to all forms of tuna imports.

Italy

(i) General Turnover Tax of 3.3%

This is levied as a percentage of the duty paid value and fresh, chilled and frozen tuna intended for direct human consumption are exempted.

(ii) Health Tax

a. Fresh and frozen, 2 lire per net kg.
b. Preserved in airtight containers, 5 lire per net kg.

(iii) Consumption Tax on Salt

	Lire per Gross kg
a. Frigate Mackerel in wooden barrels or metal boxes	1.27766
b. By products of tuna processing (e.g. roe) packed in wooden barrels or metal boxes	0.85306
c. Tuna canned with salt or preserved in oil and mustard with vegetables, and packed in wooden barrels or metal boxes	0.2123

Any other boxes of canned imports would fall into the category of 'other fish not mentioned above', the relevant rate of duty being 3.86 per gross kg.

(iv) Administration fee of 0.5%. This, together with stamp and statistical dues, amounts to approximately 1% of the cif value.

(v) Experimental station tax of 0.2 lire per 1 000 lire of the value of the goods.

(vi) Frontier surtax on the oil content of goods.

a. Seed oils – 7.60 lire per kg of refined seed oil contained.

b. Olive oil – 14 lire per kg of edible oil contained (the rate upon rectified oil is 15.20 lire).

Importers of canned tuna containing olive oil can ask the customs to be allowed to pay the frontier surtax on the oil content at a flat rate of 30 per cent, the customs will then settle the surtax forthwith on the basis of this declaration.

Netherlands

Added Value Tax 14%

This is payable upon the duty paid value and the cost of inland freight to the consignees address.

JAPAN

TN 03.01

B. Fresh (live or dead) chilled or frozen

(i) General Tariff 10%

(ii) GATT Tariff 6% (1972 rate applicable from 31 December 1971 5%)

TN 03.02

2 (1) and (2) Salted, in brine, dried and smoked 15% (no GATT reduction).

TN 16.04

Prepared or preserved

(i) 20% (ii) 16% (1972 rate 15%).

UNITED KINGDOM

TN 03.01

C (2) Fresh, chilled or frozen

(i) Full Tariff – 10%

(ii) Commonwealth Preference Tariff – Free

(iii) EFTA Tariff – 10% (chilled or frozen fillets are duty free)

TN 03.02

(C) Salted, in brine, dried or smoked

(i) 10% (ii) Free (iii) 10%.

TN 16.04

Prepared or preserved

(i) 8% (ii) and (iii) Free.

CANADA

Tariff Number (TN) 11500–1
Fresh or frozen, not for processing
(i) General Tariff 1 ¢ a lb.
(ii) British Preferential Tariff – Free.
(iii) Most Favoured Nation Tariff – Free.

TN 11500–2
Frozen, for processing in Canadian canneries – Free

TN 12100–1
Tuna preserved in oil
(i) 35% (ii) and (iii) 10%.

TN 12303–1
Tuna prepared or preserved (other than in oil)
(i) 30% (ii) and (iii) 11%.
These tariffs are based upon fair market value or selling price to the importer if this is higher.

SWITZERLAND

TN 03.01
20 Fresh, (live or dead) chilled or frozen, 0.50 Swiss francs per 100 kg.

TN 03.02
14. Salted, in brine, dried or smoked, 20 Swiss francs per 100 kg.

TN 16.04
Prepared or preserved
20. Over 3 kgs 2.00 Swiss francs per 100 kg.
24. 3 kgs or less. 20 Swiss francs per 100 kg.
Imports from EFTA countries are exempted from all the above.
Apart from these specific rates of duty there is also a veterinary tax of 10–13 francs per 100 kg (reduced to 1 franc for members of the EFTA) and a statistical tax of 3% of the amount of the customs charges.

SPAIN

TN 03.01
A. Fresh (live or dead), chilled or frozen
(i) Fixed 10%
(ii) Temporary 6%
(iii) Home Compensation Tax levied on duty paid value 8%.

TN 03.02
C. Salted, in brine, dried or smoked
(i) 5% (ii) 2.5% (iii) 7%.

TN 16.04
Prepared or preserved
C. (i) 30% (ii) 20% (iii) 11%.

Notes: (1) The temporary tariff is the normal Spanish rate. At the moment (January 1971) the Fixed Rate does not apply to many countries.
(2) Some of the above tariffs are subject to temporary reductions which may be suspended or extended at any time, e.g. in 1971, there was

a 100 per cent reduction in the temporary rate of TN 03.01A until 30 April.

(3) Spain has a trade agreement with the EEC under which reduced rates of tariff are levied. These are shown below.

Reductions in rates of tariff applicable to tuna imported from the EEC

	(a)	(b) Reduction Operative From:				
TN	Current Reduction	1.1.73	1.1.74	1.1.75	1.1.76	1.1.77
03.01A	10%	20%	30%	40%	50%	60%
03.02C 16.04C	5%	10%	no reduction	15%	20%	25%

YUGOSLAVIA

TN 03.01 2 (b)
Fresh, chilled or frozen
Free

TN 03.02 2 (b)
Salted, in brine, dried or smoked
6%

TN 16.04 (4)
Prepared or preserved
10%.

Appendix F

The (UK) labelling of food regulations 1970

In Part II, Section 5(1) of the above regulations it is laid down that, as from 1st January 1973, 'no person shall sell by retail any pre-packed food, other than intoxicating liquor, unless there appears on a label marked on, or securely attached to, the container a true statement as regards that food in compliance with this regulation'. A statement for canned fish must give the name of the food, a list of ingredients and the name and address of the packer or labeller.

The names for the various species of tuna which must be used on labels are given in Schedule I and are:—

Species	Appropriate designation
All species of *Thunnus* except *T. alalunga*	Tuna or tunny
All species of *Neothunnus*	
Thunnus alalunga	Albacore tuna
All species of *Sarda*	Bonito tuna
All species of *Euthynnus*	
Katsuwonus pelamis	Skipjack tuna

As to the naming of a food packer, it is provided in Part II, Section 5(3) that, 'The said statement (i.e. that in Section 5(1)) shall also specify the name of either the packer or the labeller of the food and an address at which such person carried on business'. An allowance is made for the situation in which the packing or labelling is undertaken on behalf of a person carrying on business in the United Kingdom when that persons name and address may be given instead.

Also laid down in the regulations are requirements as to the form which labelling shall take, the specification of ingredients and claims made by sellers on behalf of the product.

(1159) Dd817413 2,300 9/73 HPLtd., So'ton G3313